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# PACKAGE FOR ORIENTATION OF ELEMENTARY TEACHER EDUCATORS ON INSTRUCTIONAL STRATEGIES

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**PROGRAMME CO-ORDINATOR**

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**REGIONAL INSTITUTE OF EDUCATION**
**(NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING)**
**BHUBANESWAR**

**MARCH 2003**

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## REGIONAL INSTITUTE OF EDUCATION
(NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING)
BHUBANESWAR

MARCH 2003

# PREFACE

It is not information or multimedia resource that makes a difference in instructional process, it is, how they are used. All effective instructional strategies potentially require all the type of media. Media is merely a way of representing subject matter content. Merely having multi-media objects included does not determine instructional effectiveness. If the media objects are relevant to the instruction, if they facilitate in implementing effective instructional strategies, then the effect is efficient and effective. If, on the other hand, the media objects are merely decorative and serve no instructional purpose, then they may in fact interfere with, rather than facilitate, learning.

It is currently thought that the information in our long-term memory is stored in interconnected networks called knowledge structures. The size of these structures, the number of connections between these pieces of knowledge, the strength of the connections, and the organization and the richness of the relationships are all important for processing information and solving the problem.

It is easier to assimilate new information and easier to use prior knowledge for problem solving, when one has more connections and inter-connections, stronger ties between the connections and a better organized knowledge structure. When a knowledge structure in a particular topic is large and well connected, new information is more readily acquired and prior knowledge is more readily available for use. Having a well-connected network means that any one piece of information can serve to retrieve the entire pattern. Having strong connections and richness of relationship enables one to retrieve more pieces of the pattern. When information is meaningful to students, they have more points in their knowledge structures to which they can attach new information. Education is a process of developing, enlarging, expanding, and refining our students' knowledge structures.

Helping students to organize information into well-connected patterns has another advantage. When a pattern is unified it only occupies a few bits in the working memory. This available space can be used for reflecting on new information and for problem solving.

To summarize, well-connected and elaborate knowledge structures are important because (a) they allow for easier retrieval of old material, (b) they allow more information to be carried in a single chunk, and (c) they facilitate the understanding and integration of new information.

Internet technology has made a substantial contribution to higher education. The emphasis now continues to shift from Computer Based Learning (CBL) and its related methods such as Computer Assisted Instruction (CAI) to Internet Based Learning. Development in communications technology and increase in personal ownership of technology have allowed learning in schools and colleges to integrate with learning elsewhere. The boundaries between one institution and another and between institution and the outside world have become less important. Ultimately, technology has removed the barrier between school and home.

The child taught himself by gathering information and experiencing the world around him. Such learning exemplifies constructivism – an idea that has caused much excitement and interest among educators. It recognizes the construction of new understanding as a combination of prior learning, new information, and readiness to learn. Individuals make choices about what new ideas to accept and how to fit them into their established views of the world.

The constructivist revolution offers a new vision of the learner as an active sense-maker and suggests new methods of instruction. It facilitates presentation of materials in a constructivist way and engage students in an active explorative learning. This new approach allows the learners to have more control over their own learning to think analytically and critically, and to work collaboratively. This constructivist approach is an effort at educational reform made easier by technology. In this process the learner has access to global rather than local software and maintains a direct link with the teacher. This interactivity may take the form of a direct e-mail link, electronic conferencing or an automated connection to a server programme. This is a revolutionary vision of instructional strategies.

In the current scenario, unfortunately, effective and scientifically sound instructional strategies are poorly understood and rarely used in teaching learning situation. In order to adjust effectively with the momentum of technological revolution, and the learning system we must prepare manpower to work with innovative instructional strategies and new technologies competently and confidently.

In view of the above here an attempt has been made to develop a package for orientation of elementary teacher educators on instructional strategies.

The present package is the product of two workshops held at RIE, Bhubaneswar followed by an orientation and try out of the package on elementary Teacher Educator of Sikkim.

Hope this package will be useful for the elementary Teacher Educators.

March 2002
Bhubaneswar

Dr.H.K.Senapaty
Programme Co-ordinator

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# CHAPTER-I

# INSTRUCTIONAL STRATEGIES

## 1.0.0 INTRODUCTION

We are told that this is the information age. Our focus is on information and we are encouraged to jump onto the information high way. There seems to be an assumption that if we have sufficient information, then people will learn. The Internet is the wonderful new medium for the exchange of information. However, it is true that information is not instruction.

In addition to information, instruction involves several other activities: appropriate students; practice with appropriate feedback; learner guidance; and appropriate organization of knowledge elements. " Instruction involves directing students to appropriate learning activities; guiding students to appropriate knowledge; helping students rehearse, encode, and process information; monitoring students performance; and providing feedback as to the appropriateness of the student's learning activities and practice performance." (Merrill, et al, 1996)

It is not information or multimedia resource that makes a difference in instructional process, it is, how they are used. All effective instructional strategies potentially require all the type of media. Media is merely a way of representing subject matter content. Merely having multi-media objects included does not determine instructional effectiveness. If the media objects are relevant to the instruction, if they facilitate in implementing effective instructional strategies, then the effect is efficient and effective. If, on the other hand, the media objects are merely decorative and serve no instructional purpose, then they may in fact interfere with, rather than facilitate, learning.

A complete instructional strategy consists of **knowledge structure** consistent with, and appropriate for, the knowledge and skill being taught, a **presentation** consistent with, and appropriate for, the knowledge and skill being taught, an opportunity for **exploration** of ideas being taught, **practice** with feedback consistent with, and appropriate for, the knowledge and skill being taught, and **learner guidance** consistent with, and appropriate for, the knowledge and skill being taught (Merrill, 1997).

In the current scenario, unfortunately, effective and scientifically sound instructional strategies are poorly understood and rarely used in teaching learning situation.

It is currently thought that the information in our long-term memory is stored in interconnected networks called knowledge structures. The size of these structures, the number of connections between these pieces of knowledge, the strength of the connections, and the organization and the richness of the relationships are all important for processing information and solving the problem.

It is easier to assimilate new information and easier to use prior knowledge for problem solving, when one has more connections and inter-connections, stronger ties between the connections and a better organized knowledge structure. When a knowledge structure in a particular topic is large and well connected, new information is more readily acquired and prior knowledge is more readily available for use. Having a well-connected network means that any one piece of information can serve to retrieve the entire pattern. Having strong connections and richness of relationship enables one to retrieve more pieces of the pattern. When information is meaningful to students, they have more points in their knowledge structures to which they can attach new information. Education is a process of developing, enlarging, expanding, and refining our students' knowledge structures.

Helping students to organize information into well-connected patterns has another advantage. When a pattern is unified it only occupies a few bits in the working memory. This available space can be used for reflecting on new information and for problem solving.

A major difference between an expert and a novice is that the expert knowledge structure has a larger number of knowledge items, the expert has more connections between the items, the link between the connections are stronger and the structure is better organized. A novice, on the other hand is unable to see these patterns, and often ignore them.

To summarize, well-connected and elaborate knowledge structures are important because (a) they allow for easier retrieval of old material, (b) they allow more information to be carried in a single chunk, and (c) they facilitate the understanding and integration of new information.

Teaching is a dynamic and well-planned process. Its objective is to acquire maximum learning experiences. In order to achieve this great objective, various methods and techniques are used. The success of teaching depends on well planning. A skilled teacher, while planning, thinks carefully about the teaching strategies. These operations of teaching depend upon contents task-analysis, teaching objectives, nature of learning, types of learning, learning experiences, interest of pupils, their attitudes, capacities, needs, and entering behaviours. Hence, it is important to take decision about teaching operations a teacher should perform in order to achieve the objectives of teaching. For this it is necessary to select and use appropriate instructional strategy.

According to the Collins English Gem dictionary, the strategy means the art of war or the skill of war. In encyclopedia too, its meaning has been given as an art of deploying army so that a specific goal can be achieved. According to encyclopedia "strategy is the science or art of planning and directing large military movements and operations". It is clear that strategy is that skillful planning of a working system by which the objective can be achieved conveniently. All strategies are never same. These change according to the changing situation.

The word strategy is the determination of some policy by planning before presenting the contents, which helps in achieving the objectives of teaching. Hence the pre-planning of the lesson is key to success. Every teacher should be skilled in the art of pre-planning.

Attention should be paid that the teaching strategies are more comprehensive than the teaching methods. It is because that the teaching methods include only the presentation of contents. Contrary to this teaching strategy includes all the aspect like content, task analysis, teaching objectives, teaching methods, approaches and techniques. Its aim at establishing relationship between teaching input and learning outcomes, mainly in terms of realizing the learning outcomes.

### 1.1.0 Learning Theories and Instructional Strategies

Instructional strategies are used to achieve the goal of teaching. The goal of teaching is to enhance learning. In this context there is need of studying different views on learning. Mayer (1992) has shown how three views of learning have emerged during the past 100 years of research on learning: (a) learning as response strengthening (b) learning as knowledge acquisition, and (c) learning as knowledge construction.

According to the first view the learning occurs when a learner strengthens or weakens an association between a stimulus and a response. The learning as **response strengthening** view developed in the first half of the 20th century and was based largely on the study of animal learning in artificial laboratory settings. The role of the learners is to passively receive rewards and punishments, whereas the role of instructor is to administer rewards and punishments, such as in drill – and practice. The instructional designer's role is to create environments where the learner is cued repeatedly to give a simple response, which is immediately followed by feedback.

The second view, learning as **knowledge acquisition**, is based on the idea that learning occurs when a learner places new information in long-term memory. This view developed in the 1950s, 1960s, and 1970s and was based on the study of human learning in artificial laboratory settings. The role of the learners is to passively acquire information and the teacher's job is to present information, such as in text-books and lectures. According to the knowledge acquisition view, information is a commodity that can be transmitted directly from teacher to learner. The instructional designer's role is to create environments in which the learner is exposed to large amounts of information, such as in textbooks, lectures, and computer-based multimedia programs.

The third view, learning as **knowledge construction**, is based on the idea that learning occurs when a learner actively constructs a knowledge representation in working memory. This view emerged in the 1980s and 1990s and was based largely on the study of human learning in increasingly realistic settings. According to the knowledge construction view, the learner is a sense maker, whereas the teacher is a cognitive guide who provides guidance and modeling on authentic academic tasks. The instructional designer's role is to create environments in which the learner interacts meaningfully with academic material, including fastening the learning process of selecting, organizing and integrating information. Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences we construct our own understanding of the world we live in. each of us generates our own "rules" and "mental models" which we use to make sense of our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences. Constructivist learning occurs when learners actively create their own knowledge by trying to make sense out of material that is presented to them.

# Learning Theories and Instructional Strategies Matrix

| | Behaviorism | Cognitivism | Constructivism |
|---|---|---|---|
| Representations of the Learning Process | Stimulus-Response<br>Reinforced Behavior<br>Antecendent Behavior Consequence<br>Sequenced knowledge and skills presented in logical limited steps | Cognitivist Learning Perspective<br>Information Processing<br>Schema<br>Mental Models | Inquiry-based<br>Discovery learning |
| Relevant Frameworks | Programmed Instruction (logical presentation of content, overt responses, immediate knowledge of correctness) | Events of Instruction (Conditions of Learning) | Cognitive Apprenticeship<br>Cognitive Flexibility<br>Situated Learning<br>Zone of Proximal Development |
| Key Principles | Learning happens when a correct response is demonstrated following the presentation of a specific environmental stimulus<br>Emphasis is on observable and measurable behaviors | Learning is a change of knowledge state<br>Knowledge acquisition is described as a mental activity that entails internal coding and structuring by the learner.<br>Learner is viewed as an active participant in the learning process<br>Emphasis is on the building blocks of knowledge (e.g. identifing prerequisite relationships of content)<br>Emphasis on structuring, organizign and sequencing information to facilitate optimal processing | Learners build personal interpretation of the world based on experiences and interactions<br>Knowledge is embedded in the context in which it is used (authentic tasks in meaningful realistics settings)<br>Create novel and situation-specific understandings by "assembling" knowledge from diverse sources appropriate to the problem at hand (flexible use of knowledge) |

| | | | |
|---|---|---|---|
| **Goal of Instruction** | **Communicate or transfer behaviors representing knowledge and skills to the learner (does not consider mental processing)**<br>Instruction is to elicit the desired response from the learner who is presented with a target stimulus<br>Learner must know how to execute the proper response as well as the conditions under which the response is made<br>Instruction utilizes consequences and reinforcement of learned behaviors | **Communicate or transfer knowledge in the most efficient, effective manner (mind-independent, can be mapped onto learners)**<br>Focus of instruction is to create learning or change by encouraging the learner to use appropriate learning strategies<br>Learning results when information is stored in memory in an organized, meaningful way.<br>Teachers/designers are responsible for assisting learners in organizing information in an optimal way so that it can be readily assimilated | **Build personal interpretations of the world based on individual experiences and interactions (constantly open to change, cannot achieve a predetermined, "correct" meaning, knowledge emerges in relevant contexts)**<br>Learning is an active process of constructing rather than acquiring knowledge<br>Instruction is a process of supporting knowledge construction rather than communicating knowledge<br>Do not structure learning for the task, but engage learner in the actual use of the tools in real world situations |
| Instructional/ Learning Strategies | • Behaviorism<br>• Instructional cues to elicit correct response<br>• Practice paired with target stimuli<br>• Reinforcement for correct responses<br>• Building fluency (get responses closer and closer to correct response)<br>• Multiple opportunities/trials (Drill and practice)<br>• Discrimmination (recalling facts)<br>• Generalization (defining and illustrating) | • Information Processing Model<br>• Explanations<br>• Demonstrations<br>• Illustrative examples<br>• Gestalt Theory<br>• Matched non-examples<br>• Corrective feedback<br>• Outlining<br>• Mneumonics<br>• Dual-Coding Theory<br>• Chunking Information<br>• Repetition<br>• Concept Mapping<br>• Advanced Organizers<br>• Analogies | • Modeling<br>• Collaborative Learning<br>• Coaching<br>• Scaffolding<br>• Fading<br>• Problem-Based Learning<br>• Authentic Learning<br>• REALs<br>• Anchored Instruction<br>• Cognitive Flexibility Hypertexts<br>• Object-based Learning |

| | | | |
|---|---|---|---|
| | concepts)<br>- Associations (applying explanations)<br>- Chaining (automatically performing a specified procedure) | - Summaries<br>- Keller's ARCS Model of Motivation<br>- Interactivity<br>- Synthesis<br>- Schema Theory<br>- Metaphor<br>- Generative Learning<br>- Organziational strategies<br>- Elaboration Theory<br>- Links to prior knowledge | |
| Theorists | - Skinner<br>- Bandura<br>- Thorndike<br>- Pavlov | - Gagne<br>- Bruner<br>- Anderson<br>- Gardner<br>- Novak<br>- Rummelhart<br>- Norman | - Vygotsky<br>- Lave & Wenger<br>- Piaget<br>- Bransford, Hasselbring,etc. (CTGV)<br>- Grabinger<br>- Spiro and colleagues |

Developed by George Mason University

The constructivist revolution offers a new vision of the learner as an active sense-maker and suggests new methods of instruction. Hence, there is an urgent need of studying constructivism in detail, in order to draw its implication for teaching learning process.

### 1.1.1 History of constructivism

As a philosophy of learning, constructivism can be traced at least to the eighteenth century and the work of the Neapolitan philosopher Gambattista Vico, who held that humans can only clearly understand what they have themselves constructed. Many others worked with these ideas, but the first major contemporary to develop a clear idea of constructivism as applied to classroom and childhood development were Piaget and John Dewey. For Dewey education dependent on action, knowledge, and ideas emerged only from a situation in which learners had to draw them out of experiences that had meaning and importance to them. These situations had to occur in a social context, such as a classroom, where students joined in manipulating materials and thus, created a community of learners who built their knowledge together.

Piaget's constructivism is based on his view of the psychological development of children. In a short summation of his educational thoughts, Piaget called for teachers to understand the steps in the development of the child's mind. The fundamental basis of learning, he believed was discovery "To understand is to discover, or reconstruct by rediscovery, and such conditions must be complied with if in the future individuals are to be formed who are capable of production and creativity and not simply repetition". To reach an understanding of basic phenomena according to Piaget, children have to go through stages in which they accept ideas they may later see as not truthful. In autonomous activity, children must discover relationships and ideas in classroom situations that involve activities of interest to them. Understanding is built up step through active involvement.

The Russian Lev. S.Vygotsky is also important to constructivism, although his ideas have not always been clear. Some commentators believe that Vygotsky is not a constructivist because of his emphasis on the social context in learning, but others see his stress on children creating their own concepts as constructivist to the core. Vygotsky believed that children learn scientific concepts out of "tension" between their everyday notions and adult concepts presented with a preformed concept from the adult world the child will only memories what the adult says about the idea. To make it her property the child must use the concept and link that use to the idea as a first presented to her. But the relation between everyday notions and scientific concepts was not a straight development.

### 1.1.2 Principles of constructivism

(I) Learning is a search for meaning. Therefore, learning must start with the issues around which students are actively trying to construct meaning.

(II) Meaning requires understanding wholes as well as parts. And parts must be understood in the context of wholes. Therefore, the learning process focuses on primary concepts, not isolated facts.

(III) In order to teach well, we must understood the mental models that students use to perceive the world and the assumptions they make to support those models.

(IV) The purpose of learning is for an individual to construct his or her own meaning, not just memorise the "right" answers and regurgitate someone else's meaning since education is inherently interdisciplinary, the only valuable way to measure learning is to make the assessment part of the learning process, ensuring it provides students with information on the quality of their learning.

### 1.1.3 Constructing knowledge in the classroom

The child taught herself by gathering information and experiencing the world around her. Such learning exemplifies constructivism – an idea that has caused much excitement and interest among educators. It recognizes the construction of new understanding as a combination of prior learning, new information, and readiness to learn. Individuals make choices about what new ideas to accept and how to fit them into their established views of the world.

In the classroom the constructivist teacher set up problems and monitors student exploration, guides the direction of student inquiry and promotes new patterns of thinking. Classes can take unexpected turns as students are given the autonomy to direct their own explorations. Constructivist teachers refer to raw data, primary sources, and interactive materials to provide experiences for their students rater than relying solely on another's set of data.

**In a constructivist classroom ----**

(a) Students' autonomy and initiative are accepted and encouraged – By respecting students ideas and encouraging independent thinking, teaches help students attain their own intellectual identity. Students who frame questions and issues and then go about analyzing and answering them take responsibilities for their own learning and become problem solvers.

(b) The teacher asks open-ended questions and allows wait time for responses – Reflective thought takes time and is often built on others ideas and comments. The ways teachers ask questions and the ways students respond will structure the success of student enquiry.

(c) High-level thinking is encouraged – The constructivist teacher challenges students to reach beyond the simple factual response. He encourages students to connect and summarize concepts by analyzing, predicting, justifying, and defending their ideas.

(d) Students are engaged in dialogue with the teacher and with each other – social discourse helps students change or reinforce their ideas. If they have the chance to present what they think and hear others ideas students can build a personal knowledge base that they understand. Only when they feel comfortable enough to express their idea will meaningful classroom dialogue occur.

(e) Students are engaged in experiences that challenge hypotheses and encourage discussion – when allowed to make predictions students often generate varying hypotheses about natural phenomena. The constructivist teacher provides ample opportunities for students to test their hypotheses, especially through group discussion of concrete experiences.

(f) The class uses raw data, primary sources, manipulative, physical and interactive material – The constructivist approach involves students in real world possibilities, and then helps them generate the abstractions that bind phenomena together.

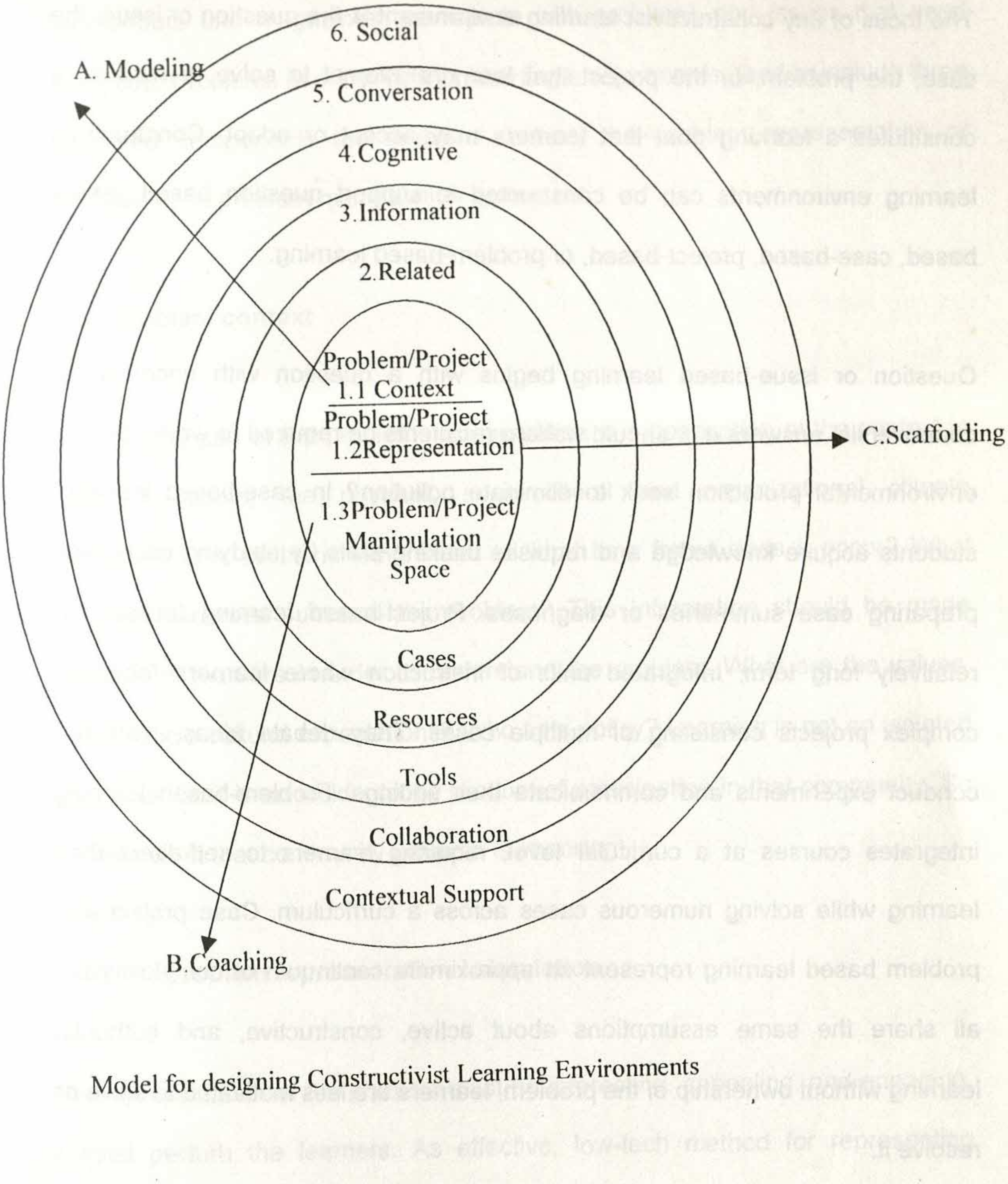
### 1.2.0 Designing Constructivist Learning Environments

Objectivist conceptions of learning assume that knowledge can be transferred from teachers or transmitted by technologies and acquired by learners. Objectivist conception of instructional design include the analysis, representation and resequencing of content and tasks in order to make them more predictable and reliably transmissible.

Constructivist conceptions of learning, assume that knowledge is individually constructed and socially constructed by learners based on their interpretations of experiences in the world. Since knowledge cannot be transmitted, instructions should consist of experiences that facilitate knowledge construction. A model for designing constructivist learning environments that engage learners in meaning making (knowledge construction) is presented below.

### 1.2.1 Model for designing constructivist learning environments

The model for designing constructivist learning environments illustrates their essential components. The model conceives of a problem, question or projects as the focus of the environment, with various interpretative and intellectual support systems surrounding it. The goal of the learner is to interpret and solve the problem or complete the project. Cognitive tools help learners to interpret and manipulate aspects of the problem. Conversation / collaboration tools enable communities of learners to negotiate and co-construct meaning for the problem; and social / contextual support systems help users to implement the constructivist learning environments.



Model for designing Constructivist Learning Environments

### A. Question / case / problem / project

The focus of any constructivist learning environment is the question or issue, the case, the problem, or the project that learners attempt to solve or resolve. It constitutes a learning goal that learners may accept or adapt. Constructivist learning environments can be constructed to support question based, issue-based, case-based, project-based, or problem-based learning.

Question or issue-based learning begins with a question with uncertain or controversial answers e.g. should welfare recipients be required to work? Should environmental protection seek to eliminate pollution? In case-based learning, students acquire knowledge and requisite thinking skills by studying cases and preparing case summaries or diagnoses. Project-based learning focuses on relatively long term, integrated units of instruction where learners focus on complex projects consisting of multiple cases. They debate ideas, plan and conduct experiments and communicate their findings. Problem-based learning integrates courses at a curricular level, requiring learners to self-direct their learning while solving numerous cases across a curriculum. Case project and problem based learning represent an approximate continuum of complexity but all share the same assumptions about active, constructive, and authentic learning without ownership of the problem, learners are less motivated to solve or resolve it.

How can you identify problem for constructivist learning environments? Examine the field of study, not for its topic (as in a text book) but what practitioners do. Newspapers and magazines are replete with problems and issues that need resolution. Problems in constructivist learning environments need to include three integrated components the problem context, the problem representation or simulation and problem manipulation space.

### i) Problem context

An essential part of the problem representation is a description of the context in which it occurs, the physical, socio-cultural and organizational climate surrounding the problem. Where and in what time frame does it occur? What physical resources surround the problem? This information should be made available to learners in order to understand the problem. What are the values, beliefs, socio-cultural expectations? Who sets policy? Learning is not an isolated event. Rather it is an incidental by product of participation in that community. So knowing what that community believes is important.

### ii) Problem representation / simulation

The representation of the problem must be interesting, appealing, and engaging. It must perturb the learners. As effective, low-tech method for representing problems is narrative, the problem context and problem representation become a story about a set of events that leads up to the problem that needs to be resolved. The narrative may be presented in text, audio or video. Characters are developed who interact in realistic ways to introduce the case problem. Stories are also the primary means of problem representation and coaching in goal based scenarios. The problem presentation simulates the problem in a natural context. Stories are a natural means for conveying them.

Constructivist learning recommends engaging learners in solving authentic problems. Authentic refers to supporting the performance of specific real-world tasks.

### iii) Problem manipulation space

A critical characteristic of meaningful learning is mindful activity. In order to be active, learners must manipulate something and affect the environment in someway. The problem manipulation space provides the objects and tools required for the learner to manipulate the environment. The form of the problem manipulation space will depend on the nature of the activity structure the constructivist learning environment is engaging. It should provide a physical simulation of the real-world task environment, along with observation and manipulation tools necessary for testing learners' hypotheses about their problems.

### B. Related cases

Understanding any problem requires experiencing it and constructing mental models of it. What novice learners lack most are experiences. It is important that constructivist learning environments provide access to a set of related experiences to which novice students can refer. The primary purpose of describing related cases is to assist learners in understanding the issues implicit in the problem representation. Related cases in constructivist learning environments support learning in at least two ways: by (a) scaffolding student memory and by (b) enhancing cognitive flexibility.

#### (i) Scaffold student memory: case based reasoning

Related cases can scaffold memory by providing representations of experiences that learners have not had. They cannot replace learners' involvement, but they can provide referents for comparison. When humans first encounter a situation or problem, they naturally first check their memories for similar cases that they may have solved previously. If they can recall a similar case, they try to map the previous experience and its lessons unto the current problem.

Case-based reasoning argues that human knowledge is encoded as stories about experiences and events. So when people experiences a problem or situation that they do not understand, they should be told stories about similar

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situations that function as lessons for the current problem. In order to provide a rich set of related cases that will help learners to solve the current one, it is necessary to collect a set of cases that are representative of the current one, identify the lessons that each can teach, characterize the situations in which each case can teach its lesson, and develop an index and represent its features in a way that allows cases to be recalled.

### (ii) Enhance cognitive flexibility

An important model for designing related cases in constructivist learning environments is cognitive flexibility theory, which provides multiple representations of content in order to convey the complexity that is inherent in the knowledge domain. Stress the conceptual interrelatedness of ideas and their interconnectedness by providing multiple interpretation of content. To enhance cognitive flexibility it is important that related cases may be solved with a variety of viewpoints and perspectives on the case or project.

### C. Information resources

In order to investigate problems, learners need information with which to construct their mental models and formulate hypotheses that drive the manipulation of the problem space. So, while designing constructivist learning environments it should be determined what kinds of information are an essential part of constructivist learning environments, and it should provide learner – selectable information just in time. Constructivist learning environment assumes that information makes the most sense in the context of a problem. They may include text documents, graphics, sound resources video, and animations that are appropriate for helping learners comprehend the problem and its principles. Since learners do not possess sophisticated literacy skills for evaluating the quality of and filtering the information provided, information resources included in or linked to a constructivist learning environment should be evaluated for their relevance and organized for ready access in ways that support the kind of thinking that teacher wants the learners to do.

### D. Cognitive (knowledge – construction) tools

Cognitive tools are generalisable computer tools that are intended to engage and facilitate specific kinds of cognitive processing. They are intellectual devices that are used to visualize, organize, automate, or supplant thinking skills. Some cognitive tools replace thinking, while others engage learners in generating processing of information that would not occur without the tool. Cognitive tools fulfill a number of intellectual functions in helping learners interact with constructivist learning environments. They may help the learners to better represent the problem or task they are performing. They may help the learners to represent what they know or what they are learning. Cognitive tools may help learners to gather important information needed to solve the problem. Cognitive tool engages or replaces different cognitive activity. So cognitive tools must be selected carefully to support the kind of processing that needs to be performed.

Learners' mental models of objects, systems or other phenomena possess visual-spatial components. In order to understand a phenomenon, it is necessary for most humans to generate a mental image of it. Visualization tools help learners to construct those mental images and visualize activities. Visualization tools tend to be task and domain specific. There are no general purpose visualization tools. These tools most closely mimic the nature of images required to understand the ideas. As a constructivist learning environment designer, one should analyse the activity structures required to solve the problems and identify processes that need to be represented visually and how the learner needs to manipulate those images to test their models of the phenomena.

### E. Conversation and collaboration tools

Learning most naturally occurs not in isolation but by teams of people working together to solve problems, constructivist learning environment should provide access to shared information and shared knowledge building-tools to help learners to collaboratively construct socially shared knowledge. Problems are solved when a group works toward developing a common conception of the problem, so their energies can be focused on solving it.

Computer networks have evolved to support discourse communities through different forms of computer conferences. These technologies support discourse on a wide range of topics. In knowledge building communities the goal is to support students to "actively and strategically pursue learning as a goal". To enable students to focus on knowledge construction as a primary goal, computer-supported intentional learning environments (CSILES) help students to produce knowledge databases so that their knowledge can be objectified, represented in an overt from so that it could be evaluated, examine for gaps and inadequacies. CSILEs provide a medium for storing, organizing, and reformulating the ideas that are contributed by each of the members of the community. The knowledge base represent the synthesis of their thinking, something they own and for which they can be proud.

Constructivist learning environments can also foster and support communities of learners. Communities of learners are social organizations of learners who share knowledge, values and goals. Communities of learners emerge when students share knowledge about common learning interests. New comers adopt the discourse structure, values, goals and beliefs of the community. Many of these learning community environments support reflection on the knowledge constructed and the processes used to construct it by the learners.

Constructivist learning environments should support collaboration within a group of participants, shared decision making about how to manipulate the environment, alternative interpretations of topics and problems, articulation of learners ideas, and reflection on the processes they used. Collaboration on solving a problem requires shared decision making, which proceeds through consensus-building activities to socially shared construction of knowledge and understating about the problem.

### F. Social contextual support

Throughout the history of instructional design and technology, projects have failed most often because of poor implementation. Because the designers or technology innovators failed to accommodate environmental and contextual factors affecting implementation. Frequently they tried to implement their innovation without considering important physical, organizational, and cultural aspect of the environment in which the innovation was being implemented. For instance, many implementations of films and video failed because of physical environment could not be darkened sufficiently, adequate equipments were not available, or the content of the film or video was inimical or culturally insensitive to the audience. So, the message was rejected by the learners.

In designing and implementing constructivist learning environments, accommodating contextual factors are important to successful implementations. It is also necessary to train the teachers and personnel who will be supporting the learning and to train the students who will be learning from the environments.

Questions can be posed by teachers, which are answered by peer teachers or technical staff. Social and contextual support of teachers and users is essential to successful implementation of constructivist learning environments.

### 1.2.2 Supporting Learning in Constructivist Learning Environments

In most constructivist learning environments, learners need to explore; articulate what they know and have learned; speculate (conjecture, hypothesize, test); manipulate the environment in order to construct and test their theories and models; and reflect on what they did, why it did or didn't work, and what they have learned from the activities.

These learning activities indicate the goals for providing instructional supports in constructivist learning environments, such as modeling, coaching and scaffolding.

| Learning Activities | Instructional Activities |
|---|---|
| Exploration | Modeling |
| Articulation | Coaching |
| Reflection | Scaffolding |

#### A. Modeling

Modeling is the easiest implemented instructional strategy in constructivist learning environments. Two types of modeling exist: behavioural modeling of the overt performance and cognitive modeling of the covert cognitive process. Behavoiural modeling demonstrates how to perform the activities identified in the activity structure. Cognitive modeling articulates the reasoning (reflection –in-action) that learners should use while engaged in the activities.

### (i) Model performance

Carefully demonstrate each of the activities involved in a performance by skilled performance. When learners need help in a constructivist learning environment, they might press a "show me" or 'a how do I do this?' button. Modeling provides learners with an example of the desired performance. It is important to point out each of the discrete actions and decision involved in the performance, so that learner is not required to infer missing steps. A widely recognized method for modeling problem solving is worked examples. Worked examples include a description of how problems are solved by an experienced problem solver. Worked examples enhance the development of problem schemas and the recognition of different types of problems. Worked examples should be augmented by the articulation of reasoning by the performer.

### (ii) Articulate reasoning

As an experienced performance models problem solving or project skills, he or she should also articulate the reasoning and decision making involved in each step of the process, that is, model the covert as well as overt performance. The purpose in all of these is to make the covert, overt, so that it can be analysed and understood and so that learners know why they should perform, as well as how to perform.

### B. Coaching

Learners' performances will likely improve with coaching. The role of coach is complex and inexact. A good coach motivates learners, analyses their performance provides feedback and advice on the performance and how to learn about how to perform, and provokes reflection on and articulation of what was learned. Coaching may be solicited by the learners. Coaching naturally and necessarily involves responses that are situated in the learners' task performances. Following types of coaching may be included in constructivist learning environments.

#### (i) Provides motivational prompts

A good coach relates the importance of the learning task to the learners. The constructivist learning environment coach needs to provide learners a good reason for becoming engaged. The coach should boost the learner's confidence levels, specially, during the early stages of the problem or project. Motivational prompts can usually be faded quickly once learners become engaged by the problem. It may be necessary to provide additional, intermittent prompts during the performance of particularly difficult tasks.

### (ii) Monitor and regulate the learners performance

The most important role of the coach is to monitor, analyse, and regulate the learners' development of important skills, coaching may direct the learners to particular aspects of the tasks.

- Prompt appropriate kinds of thinking, such as suggestions to generate images, make inferences, generalize another idea.
- Prompt the use of collaborative activities
- Prompt the use of specific cognitive tools
- Provide feedback that not only informs the learners about the effectiveness and accuracy of their performance, but also analyse their action and thinking.

### (iii) Provoke reflection

A good coach becomes the conscience of the learner. So a good coach provokes learners to reflect on their performance. Appropriate cognitive strategies can be implemented in constructivist learning environments by inserting provoking question that:

- Ask the learners to reflect on what they have done
- Ask the learners to reflect on what assumption they made
- Ask the learners to reflect on what strategies they used
- Require learners to argue with the coach
- Ask learners to state how certain they are in a response

**(iv) Perturb learners' models**

It is necessary to perturb the learners' model. When learners see that their models do not adequately explain the environment they are trying to manipulate, they adjust or adapt the model to explain the discrepancies.

Perturbing learners' understanding can be accomplished by embedding provoking questions. Have you thought about...? What will happen if ... ?. It is also useful to require learners to reflect on actions they have taken (why did you..? what results did you expect ? what would have happened if ...? Along with eliciting responses, the coach should ascertain the learner's response certainly. Another approach to perturbing learner models is to provide dissonant views or interpretations in response to students' actions or interpretations.

### C. Scaffolding

Modeling is focused on the expert's performance. Coaching is focused on the learner's performance. Scaffolding is a more systemic approach to supporting the learners, focusing on the task, the environment, the teacher, and learner. Scaffolding provides temporarily framework to support learning and students performance beyond the learner capacities.

The concept of scaffolding represents any kind of support for cognitive activity that is provided by an adult when the child and adult are performing the task together. Wood and Middleton(1975); Wood, Bruner and Ross (1976) describe scaffolding during problem solving as recruiting the child's interest, simplifying the task, motivating the child, and demonstrating the correct performance. Lehrer (1993) also suggests scaffolding with computer tools as well as scaffolding through alternative assessments. Whereas coaching focuses on an individual task performance, scaffolding focuses on the inherent nature of the task being performed. A learner's request for scaffolding might take the form of a "Help me Do This" button.

Learning experiencing difficulties in performing a task possess insufficient prior knowledge or readiness to perform. This suggests three separate approaches to scaffolding of learning. (a) Adjust task difficulty (b) Restructure a task to supplant knowledge (c) Provide alternative assessment.

### (i) Adjust Task Difficulty

Scaffolding may provide an easier task. Start the learners with the tasks they know how to perform and gradually add task difficulty until they are unable to perform alone. This will be their zone of proximal development. This form of task regulation is an example of black – box scaffolding, that which facilitates student performance but which will not be faded out while learners are using the environment. This is the kind of scaffolding that learners cannot see, the adult supports is invisible.

### (ii) Restructure a task to supplant knowledge

Another approach to scaffolding learners' performance is to redesign the task in a way that supports learning, that is, supplanting task performance. Suggesting or imposing the use of cognitive tools to help learners represent or manipulate the problem may also supplant task performance. These forms of scaffolding are examples of glass – box scaffolding because they are faded after a number of cases. Learner needs to be helped to perform that which they cannot do alone. Having performed desired skills; they must learn to perform without the scaffolds that support their performance.

### (iii) Provide Alternative Assessment

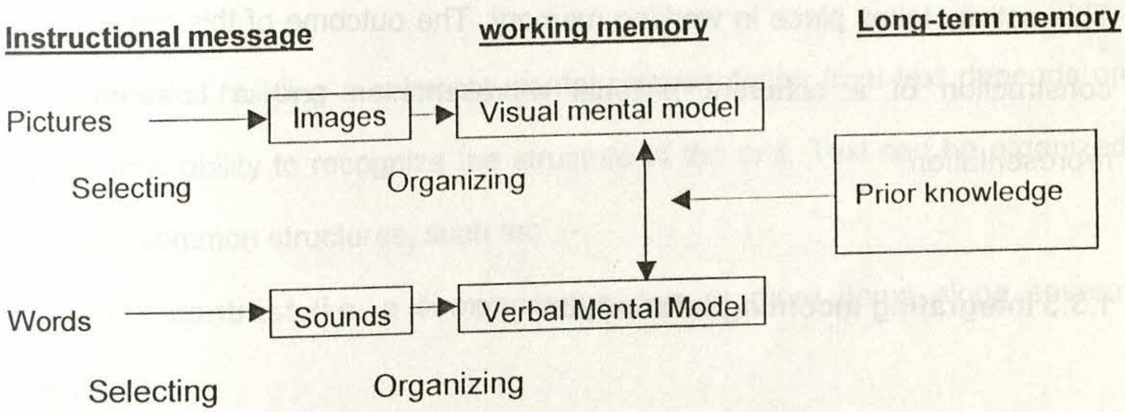
Learning is, to a large degree, assessment-driven. Learners develop fairly sophisticated strategies for identifying the expected performance and studying accordingly. Learners must be aware of the complex nature of learning task and understand what the task means, so that they metacognitively adjust their attention efforts and thinking strategies to accommodate the task. In constructivist learning environments, it is important that the project or problem requirements are clearly communicated, so that learners understand what will be required of them. This may be done through worked examples of sample problems or sample questions, as well as understanding the nature of the problem.

It is important to note that this model is intended to provide guidelines for designing learning environments to support constructive learning. Constructive learning emphasizes personal meaning making and so intentionally seeks to relate new ideas to experience and prior learning. Constructive learning therefore engages conceptual and strategic thinking in contrast to reproductive learning. constructivist learning environments are not appropriate for all learning outcomes. It may be used for designing learning environments to engage learners in personal and / or collaborative knowledge construction and problem solving outcomes.

### 1.3.O SOI Model

Constructivist learning depends on the activation of several cognitive processes in the learner during learning, including selecting relevant information, organizing incoming information, and integrating incoming information with existing knowledge. This is called as the **SOI model** to highlight three crucial cognitive processes in constructivist learning: S for selecting, O for organizing, and I for integrating (Mayer, 1996). Constructivist theory focuses that the learner in working memory constructs knowledge. In this construction process the learner used both incoming material from the environment and prior knowledge from long-term memory. The SOI model is a theory of learning that can be used to generate instructional implications.

**SOI MODEL**



### 1.3.1 Selecting relevant information

The first process is the selecting of relevant information for further processing. When words and pictures are presented to learn in an instructional message, the learner represents them briefly in sensory memories, because of the limited capacity of the human information-processing system. Only some of these representations can be retained for further processing in working memory.

### 1.3.2 Organizing incoming information

The next process involves organizing the selected auditory representation into a coherent verbal representation and organizing the selected images into a coherent pictorial representation. In this process the retained visual images are connected by appropriate links (such as cause and effect) and retained verbal representations are connected by appropriate links (such as cause and effect). This activity takes place in working memory. The outcome of this process is the construction of a coherent pictorial representation and a coherent verbal representation.

### 1.3.3 Integrating incoming information

In the third process, students make one-to-one connections between corresponding elements of the pictorial and verbal representations they have constructed using prior knowledge.

A final step in learning process is encoding, in which the mental representations constructed in working memory are stored in long-term memory for permanent retention.

### 1.3.4 Techniques for encouraging students' to select materials

The following techniques may be incorporated into text-base message

(i) Using headings, italic, boldface, large font, buttons, arrows, icons, underlining, margin notes, representation, and / or white space to highlight relevant information: and

(ii) Using adjacent questions and statements of instructional objectives to emphasize relevant information.

### 1.3.5 Technique for encouraging students to organize materials

The process of building a coherent mental representation from text depends on the learners' ability to recognize the structure of the text. Text can be organized in several common structures, such as:

**compare / contrast** (i.e. a comparison of two or more items along several dimension),

**classification** (i.e. a hierarchical network),

**enumeration** (i.e. a list of parts or features of a topic).

**generalization** (i.e., a general assertion followed by supporting evidence). and **cause-and- effect** (i.e., a chain of events in a causal system).

When text is disorganized, or its structure is not seen by the learner, the learner is likely to be engaged in rote learning as an arbitrary list of unrelated facts.

### 1.3.6 Technique for encouraging students to integrate materials

Advance organizers, illustrations, worked-out examples and elaborative questions may be used to foster knowledge integration.

(i) Breaking the message into some steps and coordinating the text with illustration helps foster the integration of words with prior knowledge.

(ii) Advance organizer and the analogy provided in the advance organizer foster knowledge integration.

(iii) Inserting elaboration questions in a text encourage learners to relate the presented information to their existing knowledge.

(iv) Use of multi-frame illustrations promotes knowledge integration when the illustrations frames contain captions that correspond to the explanation depicted in the frame. Coordinated presentation of words and pictures allows students to build and coordinate multiple representations of the same explanation.

(v) Narrated animation fosters knowledge integration.

### 1.3.7 Focus of the knowledge construction approach

- Focuses on process as well as product
- Enables transfer as well as retention
- Promotes how to learn as well as what is learnt

### 1.4.0 Constructivist Learning and Internet technology

Internet technology has made a substantial contribution to higher education. The emphasis now continues to shift from Computer Based Learning (CBL) and its related methods such as Computer Assisted Instruction (CAI) to Internet Based Learning.

There appear to be two main options. One is a form of distance learning in which a teacher places course-materials on a web server, which can be accessed by remote students. This approach follows a prescriptive pattern. It allows all the teaching materials to be validated at source and integrated into the course. However, it may be an expensive way to provide enough software to meet the demands of complete syllabus. The alternative is a type of independent study in which learners search the internet for material that are relevant to their interests. This is a more constructive process that can provide access to a media range of course-man and multiple views of a subject area but the suitability of the material for a taught course cannot be guaranteed.

These two modes can be combined to form a more general approach that may be described as Internet based learning (IBL). It includes any process in which a learner is provided with access to course-materials stored in the Internet. It requires a model of teaching that combines the advantages of both prescriptive and constructive / exploratory learning by selecting appropriate materials and admitting a wide range of views of a subject. It should facilitate a learning style that has been described as guided discovery.

This new approach allows the learners to have more control over their own learning to think analytically and critically, and to work collaboratively. This constructivist approach is an effort at educational reform made easier by technology. In this process the learner has access to global rather than local software and maintain a direct link to the teacher. This interactivity may take the form of a direct e-mail link, electronic conferencing or an automated connection to a server programme.

Teaching may be described in terms of a set of specific function. A popular set includes orienting, motivating, presenting, clarifying, elaborating, consolidating and confirming. In order to integrate constructivist theory into Internet technology, teaching is to be the delivery of information and support and leads to a model that facilitate Internet based learning.

Internet information is usually accessed through the hypertext protocols of World Wide Web. Some authors are of the opinion that an unstructured presentation is more conducive to learning by forcing the learner to construct a personal knowledge map other prefer to offer more direction in the form of a navigable interface that relates to the structure of the subject. Both views have their merits, but for an open learning system such as the Internet a structured interface appears to be more appropriate.

The most widely used information structure is that of object oriented hierarchy, this model is popular because it appears to reflect the way people assimilate and process information. Books have such structures with object forming a hierarchy of chapter, section and smaller components and a user interface in the form of a content page. More appropriately, computer filing system and user interface such as that of Microsoft windows have object oriented structures. From the point of view of constructivist theory the wide use of concept maps and schemes supports the view that personal knowledge is either object oriented or can be related to information having such a structure.

Object oriented model have been developed for a number of course. These are delivered on an internal network and the Internet. The structure adopted for the course on information technology is illustrated in figure – 1. This is derived from a simple list representing the content of a book. It can be regarded as concept map that might be drawn by the course designing in which the objects correspond to the nodes and the link describe the relationships between them. It is descried how as a study map. It represents the same view of the subject area as the book treatment but the some additional fitness in the form of navigational information indicating the sequence in which the objects may be studied. This is necessary to complete the hierarchical logic. Other peripheral objects can be added to show the entire course linked to entire knowledge.

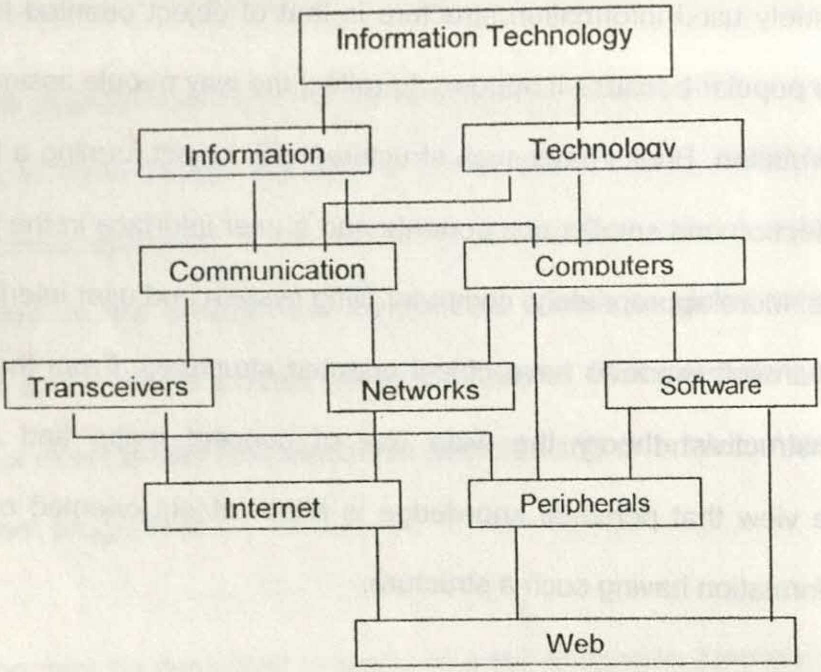


Figure-1

In developing the hierarchy, it is inferred that an object at one level should be logical component of another at the level immediately above. This principle of composition is easily satisfied at the higher levels but break down at the lower ones. However, it generates a paradoxical relationship in which one object is seen as a component of another, which is a component of a first one. Each object is recognized as a complete treatment of its associated topic rather than a component of a more abstract one. The links between the adjacent objects describe a more subtle relationship than simple composition. In object oriented theory they can be related to a hierarchical model based on composition and another properly known as inheritance. There is an urgent need of introducing this approach in teacher education programme.

In the present context, it is sufficient to accept the empirical conclusion that the objects are complete treatments of the topics and the links define two-way relationship between adjacent topics in which each can be viewed as a component of other. The result may be descried as constructivist information system. Any object can be expanded in this way. This is firmly in line with the constructivist principle and it is a format that is readily available on the Internet.

The constructivist revolution offers a new vision of the learner as an active sense-maker and suggests new methods of instruction. It facilitates presentation of materials in a constructivist way and engage students in an active explorative learning. This new approach allows the learners to have more control over their own learning to think analytically and critically, and to work collaboratively. This constructivist approach is an effort at educational reform made easier by technology. In this process the learner has access to global rather than local software and maintain a direct link to the teacher. This interactivity may take the form of a direct e-mail link, electronic conferencing or an automated connection to a server programme. This is a revolutionary vision for instruction.

### 1.5.0 Objectives of the project

- To develop materials on activity centric instructional strategies and to orient the teacher educators on such materials to promote professionalism. .

### 1.6.0 Methodology

Workshop method, interactive and participatory mode was followed at different steps during the process of development of this package.

### 1.6.1 Target users of the package

The training package is primarily developed for the orientation of elementary teacher educators of Sikkim on instructional strategies. The package, however, may be used by teachers, researchers, educational administrators, supervisors, parents/public at large and the teacher educators of other states, interested in the field of education.

### 1.6.2 Procedure

The following procedure was followed for the development of the package.

### (i) Development of the training modules

Two five-days workshops one from 5-9 June 2002 and the other from 24-28 June 2002 were organized at Regional Institute of Education, Bhubaneswar for the development of the training modules involving teacher educators, and other experts as resource persons. As many as, 27 modules were developed in the workshop.

### (ii) Try-out of the training modules

A five-day orientation programme from 10-14 February 2003 was organized at State Institute of Education, Sikkim, Gangtok to try-out the module to study the feasibility. As many as, 13 elementary teacher educators from the state of Sikkiim attended the orientation programme.

### (iii) Scrutiny and finalization of the modules

Training modules were modified and finalized on the basis of the feed-back received from the participants during the orientation programme.

# CHAPTER – II

# MODULES ON INSTRUCTIONAL STRATEGIES

## MODULE -1

## GOALS AND OBJECTIVES OF ELEMENTARY EDUCATION AND ELEMENTARY TEACHER EDUCATION

### Expected Learning Outcomes

After completing this module a trainee will be able to:

- Enlist the objectives of elementary education from their own perception and experiences;
- Compare their perceived objectives of elementary education with the objectives envisaged in the National 'Curriculum framework for school education' (NCERT, 2000);
- List the objectives of elementary teacher education programme from their experience;
- Compare their perceived objectives of elementary teacher education programme with the objectives envisaged in 'Curriculum framework for quality teacher education' (NCTE, 1998); and

- Examine the correspondence between the objectives of elementary education and the objectives of elementary teacher education programme.

**Overview**

This module seeks to reorient the teacher educators about the goals and objectives of elementary education and elementary teacher education. While refreshing their memory on the objectives of elementary education they will examine the viability of the objectives of teacher education for the elementary level to ensure quality primary education.

**Learning activity-I:** The trainer will ask the participants to state an objective of elementary education from their experience and record their observations. He will present the following objectives of elementary education as envisaged in National Curriculum framework for school education, NCERT (2000) with the help of OHP / Chart.

**School Curriculum will promote among the learners:**

- Language abilities of listening, speaking, reading, writing, thinking and communication skills.
- Mathematical abilities that would help learners to apply in every day life.
- Scientific temper characterized by spirit of inquiry.
- Understanding of the environment in its totality-both natural and social, and their interactive processes.

- Understanding of the composite cultural heritage of the country.
- Application of the sacrifices and contributions made by the freedom fighters and social workers.
- Knowledge of and respect for the national symbols and the desire and determination to uphold the ideals of national identity and unity.
- Deep sense of nationalism and patriotism
- Knowledge, attitude and habits necessary for keeping physically and mentally fit.
- Development of concept of work
- Appreciation of small family norm

**Discussion**

The participants will be asked to compare their perceived objectives with that of the objectives presented to them. After finalization of the objectives the trainer will initiate discussion by collecting opinion of the trainees regarding achievability of each objective. Further he will discuss with them which can be achieved immediately and which ones can be achieved on long term basis with justification.

**Learning activity – 2**

The participants will be asked to state the objectives of elementary level teacher education programme from their experience. The trainee will record their statements and furnish the following set of objectives as envisaged in NCTE document entitled "Curriculum framework for quality teacher education", 1998 with the help of OHP / Chart:

**The objectives of elementary teacher education are:**

- Develop understanding of the psychological and sociological principles relevant to elementary stage of education;
- Enable teachers to select, prepare and use appropriate resources for organizing learning experiences;
- Acquaint them with methods and materials of teaching children with special needs;
- Develop among them the capacity to solve the social and emotional problems of children;
- Enable them acquire necessary skills so as to develop curiosity, imagination and self-confidence among children;
- Develop communication skills;
- Enable them to mobilize and utilize community resources as educational input;
- Enable them to organize supplementary educational activities;
- Undertake action research projects;
- Enable them to establish mutually supportive linkages with the community; and
- Enable them to organize games, sports, physical and other co-curricular activities.

## Discussion

The participants will be asked to compare their perceived objectives with that of the objectives prescribed by NCTE. They will be asked to establish congruence between the two sets of objectives. They will be asked to examine if the existing set of objectives of elementary teacher education are good enough for realizing the objectives of elementary education. In case of incongruence the trainer initiates discussion on justification thereof.

## Self-check exercise

Say 'Yes' / No to the statements

(I) Are all the objectives of elementary education as laid down in the NCERT document achievable? Yes / No

(II) Do the educational objectives influence the direction of learning? Yes / No

(III) The objectives of elementary teacher education closely correspond to the objectives or elementary education. Yes / No

(IV) Constant reappraisal of educational objectives is necessary. Yes / No

(V) Objectives of elementary education change over time. Yes / No

(VI) Objectives of elementary teacher education need not be the same all over the country. Yes / No

## Implications for Classroom Instruction

The teacher, while transacting curriculum in different instructional fields and in different co-scholastic areas, becomes context specific and client specific.

Objective-specific transaction of curriculum makes the job of the teacher professional.

**Key Learning Points**

(I) The objectives of elementary education envisaged in National Curriculum framework for school education are based primarily on the core values laid down in the NPE, 1986, e.g. development of scientific temper, observance of small family norm, nationalism.

(II) The objectives of elementary teacher-education envisaged in curriculum framework for quality teacher education (NCTE,1998) are comprehensive which seek to enhance pedagogic, content related and socio-personal competence of the prospective / practicing teachers e.g. acquaint them with methods and materials of teaching children, enable them to establish linkage with community, develop communication skills.

(III) The objectives of elementary education and elementary teacher education have been formulated keeping in view the emerging needs and challenges of the society.

## MODULE - 2

## UNDERSTANDING THE CHILD

### Expected learning outcomes

After completing this module a trainee will be able to:

- Describe the nature of the child as a learner; and
- Suggest ways and means to transform any child to an effective learner.

### Overview

The module seeks to probe into the nature of the child as a learner so as to facilitate the work of the primary school teacher to transform any child to an effective learner. An effective learner believes in himself and relies on his own judgment. He is flexible and can change his mind. He enjoys solving problems. He displays effective language behavior. He asks meaningful questions and is not fearful of being wrong.

### Learning Activities and Discussion

#### Activity – 1

The trainees are divided into small groups. The trainer assigns 4-5 characteristics of children (from the list given below) to each group. Each group is then asked to add 4-5 characteristics more to the supplied list of characteristics. The members of each group will discuss among themselves and identify instance(s) - class / school / home, where children exhibit each characteristics mentioned in their list. The reports of the groups will be represented for sharing by all trainees. The trainer notes down the additional characteristics of children generated by the groups on the black board.

**List of characteristics of children (3-12 years of age)**

1. Curious
2. Manipulative
3. Play loving
4. Competitive
5. Emphatic
6. Imitative
7. Cooperative
8. Fickle
9. Egocentric
10. Experimental
11. Head strong
12. Instinctive
13. Adventurous
14. Whimsical
15. Error prone
16. Friendly
17. Mischievous
18. Creative
19. Imaginative
20. Adjustive

**Activity - 2**

Each group will be given one of the following themes characterizing the child as a learner. They will be asked to debate on the theme and prepare a short report on it.

1st group - The child is an open vessel to be filled up.

2nd group - The child is like a lump of clay soil to be shaped.

3rd group - The child is a plant to be watered and to be left alone to grow.

4th group - The child is a raw earthen pot to be burnt.

5th group - The child is an active knowledge constructor.

When ideas of each are shared, the characteristics of child as a learner would emerge. The trainer will record the perception of the participants in the form of short statements. This would yield a list of characteristics of children. The trainer then will put forth the list before the participants and ask them to compare the following characteristics with those in the prepared list.

- The children can probe into their immediate environment and can acquire a lot of experience.
- The children love to play with variety of objectives and can learn a lot from those.
- The children learn a lot when they themselves do something.
- The children are inquisitive by nature

- The children concentrate to do something when they are motivated for that.
- The children's response, when reinforced through incentives, is strengthened.
- The children are mischievous by nature.
- The children through habit formation can master difficult learning tasks.
- The children need a role model for imitation

There may be more such characteristics likely to emerge out of the discussion, which may be included along with the above characteristics. After going through the characteristics of the child as a learner the participants will be asked to pinpoint their role, as teacher, in shaping the behavior of the learner inside and outside the classroom through scholastic and co-scholastic areas of learning.

**Self-check exercise**

Please say 'Yes' or 'No' for the statements given below

- Children should be accepted as they are. Yes / No
- Mischievous children should be disciplined. Yes / No
- It is difficult to change the children's concepts whatever they learn during the childhood. Yes / No
- Effective learners are suspicious of authorities. Yes / No
- Good learners are not emphatically fast learners. Yes / No

- Children should be encouraged to ask questions. Yes / No
- Children have their own ideas. Yes / No
- Teacher is a facilitator of learning. Yes / No

**Implication for Classroom Instruction**

Teacher understands the child as a learner and accepts the child as he is. He concentrates on the immediate environment of the child and arranges variety of activities for the child's learning. He gives freedom and flexibility to the child to do something of his own. Instead of treating the child a passive entity, he makes him an active learner.

## WRITING INSTRUCTIONAL OBJECTIVES IN BEHAVIORAL TERMS

### Expected Learning Outcomes

After completing this module a trainee will be able to:

- Identify instructional objectives with reference to different lessons;
- Formulate instructional objectives under cognitive, affective and psychomotor domain in behavioral terms in basic school subjects, e.g. language, mathematics and EVS.

### Overview

Instructional objectives play a key role in the instructional process. They serve as guides for both teaching and learning, communicate the purpose of instruction to others and provide guidelines for evaluating pupil learning. The main function of instructional objectives is to describe the expected learning outcomes in behavioural terms. It refers, in other words, to state objectives in terms of what we expect pupil to be able to do at the end of instruction. By this our focus shifts from the teacher to the pupil and from the learning experiences (process) to the learning outcomes (product). The specific learning outcomes resulting from a topic can be classified under knowledge, understanding, application, thinking skills, general skills, attitudes, interest, appreciation and adjustment. Taxonomy of educational objectives can be used as a guide for developing a comprehensive list of instructional objectives. The system divides objectives into the three major areas, viz. cognitive domain, affective domain and psychomotor domain.

**Learning Activities**

The trainees will be divided into three groups on the basis of their expertise / interest in basic school subjects, viz. language, mathematics and EVS; and asked to:

- Identify as many instructional objectives as envisaged in a chosen topic;
- State the objectives identified in behavioral terms; and
- Categorize them under cognitive, affective and psychomotor domain

**Discussion**

After the group work, each group will present its report category-wise and in terms of pupil behaviour. The trainer then initiates discussion along the following points:

(i) Can we put one instructional objective under more than one domain? If so, identify such objectives.

(ii) Name the action verbs normally used to write instructional objectives under cognitive, affective and psychomotor domain?

(iii) Do the instructional objectives identified include all important outcomes of the topic? If not, name such outcomes.

(iv) Are there any undesirable instructional objectives?
If so, name them.

(v) Does change in action verb used to state an instructional objective change the domain under which it comes? Give example.

**Self-check exercise**

Assess your learning gain through the following exercises:

(i) Instructional objectives should focus on pupils rather than teacher.
Yes / No

(ii) Instructional objectives should focus on learning experiences rather than learning out comes.
Yes / No

(iii) Instructional objectives can be stated in behavioral as well as non-behavioral terms.
Yes / No

(iv) An instructional objective can come under more than one domain.
Yes / No

(v) Instructional objectives in respect of a subject need not necessarily cover all the domains of learning.
Yes / No

(vi) Objectives under affective domain are often neglected during instruction.
Yes / No

(vii) Does the weight given to different domains of instructional objectives vary from topic to topic? Yes / No

(viii) An instructional objective may be written differently by different teachers. Yes / No

(ix) Objectives can be written in behavioral terms without using action verbs. Yes/No

Answer Key : (i) Yes (ii) No (iii) Yes (iv) Yes (v) No
(vi) Yes (vii) Yes (viii) Yes (ix) No

**Implications for Classroom Instruction**

This module brings forth the following implication for classroom instructions:

(i) Directs the behavior of teacher in the classroom.

(ii) Teaching-learning activities becomes purposive or goal oriented.

(iii) The focus on learning outcomes makes the instructional process activity based and participatory.

(iv) Wastage of time and energy during the process of teaching and learning is checked.

(v) Develops a sense of ownership / concern among the teachers in the matter of guiding instruction.

(vi) The evaluation process becomes precise and compatible to objectives.

(vii) Writing instructional objectives by own makes the teacher innovative in designing instructional and evaluation strategies.

(viii) The teacher becomes able to locate the hard-spots in the contents.

# MODULE - 4

## INTERDISCIPLINARY LESSON

### Expected Learning outcomes

After completing this module a trainee will be able to:

- Explore the content areas in language, mathematics and EVS that can be integrated to produce desired learning outcomes;
- Plan a lesson by integrating the content inputs from language, mathematics and EVS to produce desired learning outcomes and
- Deliver an interdisciplinary lesson effectively

### Overview

Conventionally our teachers at school stage emphasizes upon specialized knowledge. Research in the area of student learning during 17th and 18th centuries provides a strong rational for the value of interdisciplinary instruction. More recent researches in cognitive science (Ausubel, 1968) and others in 1960's and 1970's support this view. The schematic structures in the brain, composed of many interconnected bits of information, serve as a framework for our knowledge. Instruction, which provides opportunity to students to connect discrete bits of information, enhances their ability to apply prior knowledge to new related learning situations. But the textbooks and teacher's guides rarely emphasize relationship between the subjects. As a result, teachers show little interest to adopt interdisciplinary approach in planning and delivering lessons. While we cannot always change the existing curricular materials directly, we can employ a planning process, which will help students understand relationship among different disciplines. Interdisciplinary lessons, however, do not concentrate on mastery of specific skills.

**Learning Activities**

The trainees will be divided into groups consisting of 4-5 members. Each group must contain subject experts in language, mathematics and EVS and asked to proceed with the following activities.

(a) Formulate a goal statement, which indicates the principle(s) or concept(s) to be understood at the end of the lesson. It should focus on the application of skills and knowledge to novel situations.

(b) Select the primary content base which will serve as the catalyst for instruction

(c) Identify events and writings within other disciplines that relate to the primary content base in a meaningful way

(d) Determine the key points of agreement among the disciplines which correspond to the terminal goal of instruction

(e) Formulate instructional objectives

(f) Identify the necessary knowledge that students must possess in each discipline area

(g) Formulate instructional strategies, e.g. concept mapping, in-class debate, group projects, which will compel students to use their knowledge in one discipline to better understand and appreciate another.

**Example**

(a) Maintenance of ecological balance, for example, may serve as a goal statement

(b) Chapter – 2 (i.e. Our Environment) of the book science and technology for class – VI (NCERT, 2002) may be selected for example, as the primary content base. The major contents of the chapter include: (i) components of environment – biotic, abiotic, socio-cultural; and (ii) interaction in the environment.

(c) The contents of chapter – I (Trees) of Modern English text book for the same class dealing with the uses of tree, fighting of human beings with the tree, the relationship between the leaves and birds (what the leaves said); and the event of digging soil by shankar for gold and harvesting the corn later, in chapter – 2 (A harvest of gold) can be taught along with the aforesaid primary content base – our environment.

- The plants need food like animals and human beings to grow.
- The plants constitute a major component of our environment.
- The plants give us many things such as oxygen, fruit, flower, wood, shade etc.
- There is interdependence among plants, animals, birds and human beings e.g. food chain, birds build nest in branches.

(d) The instructional objectives here may be formulated as follows:

- Knows the components of the environment
- Understands the interdependence between birds animals
- Identifies different things trees give us and how they are useful.
- Develops interest in plantation.

(e) The knowledge that students are likely gain from the primary content base (our environment) include:

- Different components of environment
- Food preparation mechanism of plants
- Use of plants in day-to-day life
- Relationship between plants and animals
- Food chain
- Recycling of minerals
- Bio-degradable and non-biodegradable materials.

The knowledge that students are likely to gain from the contents of related material – "Tree" of modern English.

**Discussion**

The teacher educator may put the following issues for general discussion.

(a) Can a teacher develop inter disciplinary lessons without the help of specialists from other discipline? If yes, what are the sources of knowledge?

(b) Whether the purpose of interdisciplinary lesson is mastery of specific skills or application of skills and knowledge to novel situations? (elicit justification in support of views)

(c) Should the instructional objectives in interdisciplinary lessons focus on the development of specific skills / competence? If so, give justification.

(d) Whether the instructional objectives in interdisciplinary lessons be related to the primary content base or both primary and supplementary content base? If the later is true, justify.

**Key Learning Points**

- A teacher can develop interdisciplinary lessons by brainstorming of his own, looking at the table of contents in text book experiences gathered from films or plays magazine articles etc.

- Interdisciplinary lessons often do not concentrate on the mastery of specific skills but usually focus on application of skills and knowledge to novel situations.
- The instructional objectives need to be related to both primary as well as supplementary content basis.

**Assess Yourself**

(a) The major focus of interdisciplinary lessons is on application of skills and knowledge.

(b) An individual teacher can not develop interdisciplinary lessons

(c) Informal experiences of a teacher helps in development of interdisciplinary lessons

(d) Instructional objectives in interdisciplinary lessons must address the key principles or concepts within each discipline

(e) Instructional strategy do not vary from lesson to lesson

(f) The primary content base of an interdisciplinary lesson must relate to curricular subjects only

**Implications for class room instruction**

(i) The classroom process becomes intellectually enjoyable and active.

(ii) Increases inquisitiveness of the teacher to gain knowledge from different discipline

(iii) Makes the teacher as well as students creative

(iv) Broadens the knowledge base of the teacher as well as learner.

(v) Enhances ability of the teacher as well as learner to integrate and organize ideas of different discipline.

## MODULE - 5

# INSTRUCTIONAL STRATEGY FOR DEVELOPMENT OF VALUE JUDGEMENT IN CHILDREN

### Learning Outcomes

After completing this module a trainee will be able to:

(i) Understand activities for development of value judgment in children at elementary level across subject areas; and

(ii) Evaluate the appropriateness of activities for development of value judgment

### Overview

Development of values in children is one of the important objectives of educational system of any country throughout the world. Value based education has occupied central position in national system of education in India. Traditional practice of imposition and indoctrination of values in children through teaching of religion and morals have been changed into recent practice of exploration of values by children on their own. It is possible to influence a child's level of thinking on morals and values through organization of instruction across different subject areas so that the child can develop his moral reasoning and value judgment by exploration of values and morals on his own. Various strategies are available on pedagogy to develop value judgment in children. One of such strategy developed by Kohlberg suggests that the teacher (i) presents a problem or dilemma before students (ii) ensures that students understand the moral dilemma or problem in the form of questions, (iii) encourages students with different rationales to interact with one another. Three important considerations, namely, highlighting moral issues, asking why questions, and complicating the circumstance, are the core of introducing the moral discussion.

## Learning Activities

**Activity – I**: Reading / description of the dilemma before the class.

The trainer will read out or describe the following problem or dilemma extracted from the topic "Fair Play" (Modern English Text book for class VI, New Delhi: NCERT) before the trainees.

Jumman Shaikh and Algu Chowdhury were good friends. Their friendship was so strong that when either of them went out from the village, the other looked after his family. Both were greatly respected in the village. Jumman had an old aunt who had some property. This she transferred to him on the understanding that she would stay with him and he would look after her. The arrangement worked well for a couple of years. Thereafter, the situation changed. Jumman and his family were tired of the old relative. Jumman and his wife were indifferent to her. They became unhappy even to give the little food that the old lady wanted every day. She swallowed these insult for a few months. But patience has its limits. One day she spoke to Jumman, "My son, it is now obvious that I am not wanted in your house. Kindly give me a monthly allowance so that I can set up a separate kitchen". But Jumman said shamelessly that his wife knows best how to run the house and she should not be impatient. This made his aunt angry and she told her put the case to the village panchayat. Algu Chowdhry was the head panch of the panchayat. The old lady presented a happening before the panchayat. Algu as head panch said to his friend Jumman to say in his defence. Jumman admitted that happened but refused to give her aunt a monthly allowance. After listening to Jumman, if Algu tells Jumman to pay his aunt a monthly allowance or return back the property to her, the bond of friendship between them will be broken and Algu will be Jumman's enemy. Were you in the place of Algu, would you tell Jumman to pay the aunt a monthly allowance or return back the property to her?

**Activity – 2: Clarification of difficult concepts / ideas**

The trainer will clarify the difficult concepts / ideas. For example: became indifferent means lost interest in or did not care for.

**Activity – 3: Asking Comprehension test questions to the trainees**

(I) Who were Jumman and Algu?

(II) How was their friendship so strong?

(III) Why did the old aunt transfer her property to Jumman?

(IV) What lead the old aunt to feel insulted?

(V) Why did the old aunt take the help of village panchayat?

**Activity – 4: Re-reading / description of the dilemma**

The trainer will repeat the description of the dilemma.

**Activity – 5: Exposition of value conflicts**

The trainees will be divided into two groups – one consisting of those who agree that Algu should order Jumman to pay monthly salary to his old aunt or return back the property to her; and other consisting of those who disagree to this.

**Activity – 6: Presenting puzzling questions and eliciting response.**

Following questions will be asked by the trainer to the trainees.

(I) What would Algu gain in telling Jumman to pay monthly allowance to his aunt?

(II) Who would look after his family in his absence if Algu tells Jumman to pay monthly allowance to her old aunt?

(III) Would Algu be punished or rewarded by the society if he told his friend to pay or not to pay monthly allowance to the old aunt?

(IV) Why should Algu break his friendship with Jumman?

(V) Why would Algu not help his friend at the time of his distress?

(VI) Should Algu be appreciated by the old aunt if he tells his friend to pay monthly allowance?

(VII) Would Algu be appreciated by God for his action?

(VIII) Why would Algu be not hold up dignity of human being?

**Activity – 7**: **Strengthening value judgment / moral reasoning by eliciting justification of ones' own stand**

The following two questions may be asked to the trainees to elicit justification of one's own stand.

(I) Why should Algu tell Jumman to pay monthly allowance to his old aunt by taking risk of breaking the friendship?

(II) Why should Algu not tell Jumman to pay monthly allowance to his old aunt in order to keep strong friendship with Jumman?

(The first question is supposed to be answered by the trainees belonging to group No.1 and the second question by the trainees belonging to group No.2)

**Activity – 8: Regrouping the trainees.**

The trainees will be asked to change their groups if they so desire.

**Discussion**

After completion of activities, the trainees will be facilitated by the trainer for discussion of the activities with justification in detail. The focus of discussion will be on the following points to elicit justification:

- Selection and structuring of problem or dilemma and its nature.
- Style of presentation of dilemma.
- Comprehension test questions
- Puzzling questions
- Questions strengthening value judgment

**Self Learning Exercise**

Following questions may be put to the trainees to check their learning of the present lesson:

1. Value judgment or moral reasoning in children can be developed through exploration of values by their own.

Yes / No

2. Values can be inculcated in children across various school subjects like language, environmental studies etc. Yes/ No
3. Identification, selection, and presentation of dilemma are the most important aspects of instructional strategy for value development. Yes / No
4. Systematic activities are necessary for development of value judgment in children. Yes / No

**Implications for classroom instruction**

The present lesson can be helpful to the teacher for the development of value judgment in children across various subject areas at school level.

# MODULE - 6

# CO-OPERATIVE LEARNING

## Expected Learning Outcomes

After completing this module a trainee will be able to:

- Identify areas, curricular or co-curricular, where cooperative learning is suitable;
- Acquire mastery over the strategies of cooperative learning; and
- Identify parameters for evaluation of individual as well as group performance in cooperative learning.

## Overview

How students interact with one another is a neglected aspect of instruction. Much training time is devoted to help teachers arrange interaction between students and learning-materials, some time is devoted on how teacher should interact with students, but negligible time on how students should interact with one another. Learning can be structured competitively, so that students work against each other; individually, so that they work alone; or cooperatively, where they work together to accomplish shared learning goals. Researches on cooperative, competitive and individualistic learning indicate that cooperative learning yields better results in (i) higher achievement and greater productivity, (ii) more caring, and (iii) greater psychological health and self-esteem. Co-operative learning is the instructional use of small groups so that students work together to maximize their own performance as well as that of other's.

In cooperative learning, students are divided into groups or teams in which they carry assigned work. The teacher will discuss with the students regarding group formation and assignment to be carried out by the groups. The assignment will be common for all the groups. However, the different components of the assignment are to be taken up by individual members of a group. Groups usually have four to five students and are heterogeneous for academic ability. An ideal group for example may consist of two average, one above average, and one below average students (slavin, 1995). The groups are also heterogeneous based on gender and ethnicity (Slavin, 1995). In jigsaw cooperative learning structure, for example, students are members of two different groups – the "home group" and the "jigsaw group". Initially, students meet in their home groups and each member of the home group is assigned a portion of the material to learn as an expert (Slavin, 1995). The home groups then break apart, like pieces of jigsaw consisting of members from the other home groups who have been assigned the same portion of the material. While in the jigsaw groups, the students discuss their particular materials to ensure that they understand it. Students then return to their home groups, where they teach to the rest of their groups. The teacher-educator assigns grades to individual rather than group performance.

### Learning Activities

The trainer needs to facilitate the following activities:

(I) The trainees will be divided into small heterogeneous groups called home group, with 4-5 members in each. One of the members of each home group will work as record-cum-reporter.

(II) The trainer will suggest the task for cooperative learning, which will be divided into as many sections as there are members on each team. For example, the task on biography of Mahatma Gandhi might be broken into "early years", "Schooling", "first accomplishment" and so on.

(III) The trainees meet in their home groups and distribute among themselves the task. Each individual member in the home group will attempt to learn the assigned task as an expert by referring textbooks and available resources.

(IV) After completing the learning task in the home group each member move into expert group (jigsaw group) consisting of members from the other home groups who have been assigned the same portion of the material.

(V) In the jigsaw group, the participants discuss and share their particular material with other members of the group.

(VI) From the jigsaw group the participants return to their home groups where they teach what they learnt from the jigsaw group to the rest of their group.

(VII) The members make second round meet in jigsaw group to discuss and clarify their doubts if any.

(VIII) The members return to their home groups, re-teach the members and reach at consensus.

(IX) The recorder-cum-reporters of all the home groups will present the outcomes of their groups in the class.

**Discussion**

The teacher-educator may put the following issues for discussion:

(i) What roles should recorder –cum-reporter play in home groups?

(ii) How much time should be allotted to home groups and jigsaw groups?

(iii) What activities need to be performed in home groups and jigsaw groups?

(iv) What techniques should be followed to teach in home groups on the part of a member and discuss in jigsaw group?

(v) What parameters should a teacher educator use to grade participant?

## Key Learning Points

- Cooperative learning is the instructional use of small groups so that students work together to maximize each other's learning.
- Interaction among students is an important aspect of co-operative learning.
- Co-operative learning yields higher achievement among learners as compared with competitive and individualistic learning.
- Here students work in small and heterogeneous groups.
- Individual as well as group performance is graded at the end of learning.

## Self check exercises

Check your learning of the module through the following exercises.

(i) Cooperative learning works in small groups. Yes / No

(ii) Groups are homogeneous in cooperative learning. Yes / No

(iii) Cooperative learning is teacher –centered. Yes / No

(iv) A learner can be member of either home group or jigsaw group. Yes / No

(v) Only individual performance is graded. Yes / No

Answers : (i) Yes, (ii) No (iii) No, (iv) No, (v) No

## Implication for classroom instruction

This module bears the following implications for classroom instruction:

(i) Learners remain active throughout learning.

(ii) Enhances concern of the learner for his own performance and that of the group to which he belong.

(iii) Ensures higher achievement of the learner.

## MODULE-7

# FOSTERING CREATIVITY THROUGH SYNECTICS

### Expected Learning outcomes

After completing this module the trainees will be able to:

- Know the basic assumption behind creativity i.e. creativity is not at all mysterious and hence can be fostered through training;
- Understand the procedure involved in the development of creativity;
- Identify the activities that lead to develop creativity.

### Overview

Ordinarily, when we are confronted with a task / problem, we consciously become logical. We analyse the elements of a problem and use our store house of learned experience to solve that. For most problems our logic works well enough. But sometimes our previous experiences or ways of addressing problems are not sufficient. That is when we use synectics. It is an interesting approach, designed by William J.J. Gorden and his associates (1961), to lead us into a slightly illogical world to provide new ways of seeing things and approaching problems. The basic ideas behind the use of synectics include:

(I) Creativity is important in everyday activities, i.e. a part of our daily work and leisure;

(II) Creativity process is not at all mysterious and hence it is possible to train persons directly to increase their creativity;

(III) Creative invention is similar in all fields – the arts, the sciences, engineering – and is characterized by the same intellectual process; and

(IV) Individual and group inventions (creative thinking) are very similar.

The process of synectics involves deliberate use of metaphor and analogy. The use of metaphoric activities in synectics model makes creativity a conscious process. Metaphors establish a relationship of likeness, i.e. the comparison of one object or idea with that of the other. By asking students to think of their textbook as a river, for example, we provide a metaphor, which helps students think about some familiar things in a new way. The metaphoric activity of synectics exercises use three types of analogies – personal, direct and compressed conflict. In personal analogies, students are required to empathise with the ideas / objects to be compared. For example, students may be instructed to be an automobile engine and describe their feeling when "started in the morning" or "battery goes dead". Direct analogy is a simple comparison of two objects or concepts. For example, observation of birds flying in the sky by wright brothers helped them to invent aeroplane. Compressed conflict is a two-word description of an object in which the words seem to be opposite or contradict each other. Safe attack, life-saving destroyer, nourishing flame etc are examples of compressed conflicts. These three types of metaphors form the basic of activities in this model of teaching.

Synectics strategy involves seven specific phases. In phase one-explaining the new information. In phase two the teacher or the students suggest a direct analogy. Phase three involves personal analogy. In phase four- comparing analogies – students identify and explain the points of similarity between the analogy and the substantive material. In phase five, students explain the differences between analogies. In phase six and seven students can suggest and analyze their own familiar analogies as a measure of their acquisition of new information.

**Teaching Learning Activities**

The trainees will be divided into small heterogeneous groups, each with 4– 5 members of varying academic ability. Each group will be asked to make a comparison between new topic (e.g. democracy) and the familiar topic (e.g. body). The exercise can be practiced by individual learner too. The exercise proceeds as follows:

(a) The trainer will present, in brief, the new topic, e.g. democracy, to the members of all the groups combinely.

(b) The trainees will be asked two list the connection between the descriptions of the new topic i.e. democracy, and the familiar topic, i.e. body in their respective group. Certain elements of the familiar topic may be written in the left-hand column and the parallel elements of the new topic in the right-hand column. For example:

| Elements of familiar topic-Body | Elements of the new topic-democracy |
|---|---|
| Each cell | Each individual |
| Muscles | Education |
| Brain | Law |
| Body as a whole | Democratic country |
| Disease | Loss of freedom |

(c) After listing out the connection between familiar and new topic each group of the trainees will write a short paragraph depicting analogical connections between corresponding elements.

(d) Now each group of trainees will think their own analogy for the new topic. The trainee's analogy must be very much different from that of the earlier one (i.e.body) provided by the trainer. It should be remembered that the analogies never fit exactly; they are just a way of thinking.

(e) Each group will fit the elements of the new topic with that of its analogue. More elements about the new topic, i.e. democracy, can be added here if felt by the group. For example :

| Analogue of the group | New topic |
|---|---|
| Automobile | Democracy |
| Each part | Each individual |
| Design of parts | Education |
| Car itself | Democracy |
| No fuel | Loss of freedom |

(f) Each group will write a paragraph depicting the connection. Here the grammar should not hinder the way of writing.

(g) Each group will explain in brief, the cases where the group's own does not fit.

**Discussion**

The trainer may put the following issues for discussion :

(I) Identify the connections between the elements of prescribed familiar topic and that of the new topic i.e. body and democracy, that are very strong / weak.

(II) Identify the connections between the elements of your analogue (e.g. automobile) and that of the new topic (democracy), that are very strong / strong / weak.

(III) Which type of analogies – living (body) or non-living (car), come to your mind easily ?

(IV) In which of the following cases, the connection between the elements is more appropriate?

- Living (body) and non-living (democracy)
- Non-living (car) and non-living (democracy)
- Living (body) and living (plant)
- All the above

**Key Learning Points**

- Creativity of both individual and groups can be enhanced through instruction.
- Creativity is a part of our daily work
- Creativity invention is similar in all fields- the arts, the sciences, engineering
- Creative thinking process in case of individual as well as group are very similar
- Creativity is more an emotional rather than intellectual; and more irrational rather than rational process.
- Creativity is a conscious process in synectics.
- Use of metaphor and analogy is deliberate in synectics exercises.

**Implications for classroom instruction**

- Synectics can be used while dealing with different curricular topics
- The teacher becomes able to identify the situations where synectics can be practiced
- Use of synectics reduces the burden of the teacher.
- The teaching learning process becomes child centred
- Changes the way of looking at things
- Increases the quality of instruction

**Self-check exercise**

(I) Synectics leads the learner to thing irrationally. Yes / No

(II) Synectisc is based on the assumption that creativity is hereditary. Yes / No

(III) Use of metaphor and analogy is prohibited in synectics. Yes / No

(IV) Synectics can be used for both individual as well as groups. Yes / No

(V) Creativity is not mysterious. Yes / No

(VI) Most of our daily life problems are solved through rational approach. Yes / No

(VII) Synectics is a teacher centred approach. Yes / No

Answer Key :

| | |
|---|---|
| (I) | Yes |
| (II) | No |
| (III) | No |
| (IV) | Yes |
| (V) | Yes |
| (VI) | Yes |
| (VII) | No |

# MODULE – 8

# INSTRUCTIONAL STRATEGY FOR CONCEPT DEVELOPMENT

## Expected Learning Outcomes

After completing this module a trainee will be able to:

(I) State the different phases of a concept attainment lesson and activities to be done under each phase;

(II) State the role-relation of teacher and pupils in various phases of a concept attainment lesson;

(III) List out the support materials required for a concept attainment lesson;

(IV) Design a concept attainment lesson for an elementary class.

## Overview

A 'concept' is the name of a category of objects, activities, phenomena etc. which have common features / characteristics. These common features define the concept and are called 'attributes' of the concept. For example, the concept 'flower' can be defined by attributes like 'color', 'fragrance', petal', 'stem', 'size', etc. Learning of a concept involves:

(I) Being familiar with 'the example' as well s the 'non-examples' of the concept;

(II) Identifying the 'critical attributes' of the concept (for example 'a flower attracts insects' may be a feature of flower. But it does not help much to distinguish one flower from another and hence is not a 'critical attribute' of flower);

(III) Defining the concept basing upon the identified attributes (features);

(IV) Checking the definition with new examples;

(V) Generating one's own examples.

These five steps make a good strategy for concept learning and can be used for classroom instructions. Thinking strategies employed in steps (ii) and (iii) are important activities in the process of concept development. Explicit analysis of the thinking strategies employed by the learners during step-II and step-III develop procedural knowledge (how to attain concept) among them. Such procedural knowledge facilitates concept attainment later.

**Learning Activities**:

**Phase – I**

The trainer presents some examples and non-examples of the concept 'Domestic Animal' under two columns as follows :

| Column – I (Examples) | Column – 2 (Non-examples) |
|---|---|
| Cow | Tiger |
| Goat | Deer |

| | |
|---|---|
| Pig | Hare |
| Horse | Lion |
| Cat | |

The trainer asks the trainees to think for themselves (but not to tell until they are asked) on what kind of animals are listed in column-1. He also clarifies that the animals listed in column-2 are not of the same kind those listed in column-1. Each trainee reserves his guess unit activity-2 of phage-2 of Learning Activity. (Trainer may note that trainees may guess anything like mammals, herbivorous, quadruped and so on).

**Phase – 2:**

**Activity – 1**

The trainer now presents the following list of animals one after another, and asks the trainees to say if the presented item is an example of the concept, which they have in mind (just by saying 'Yes' / 'No'). The trainer confirms the trainees' responses by saying 'correct / Incorrect.

**List of animals** : fox, dog, buffalo, monkey, beer, elephant, sheep, squirrel, mouse.

**Activity – 2**

The trainer now declares the name of the concept as 'Domestic animal' and asks the trainees to check the 'concept' which they had thought for themselves. After sharing the trainees' thought (the kind of animals i.e. the concept) the trainer asks the trainees to give new examples of the concept, 'Domestic animal'.

**Phase – 3**

The trainer asks the trainees to share thought in terms of

- What was the initial guess like? (during phase-1)
- Why did they think so?
- How was progress of their thought as new items were presented (during phase- 2, activity – 1) ?

The focus of the activities / discussions is the meta-cognition of the thought process, especially hypothesizing alternatives and finalizing through testing the defining attributes.

**Discussion**

The trainer declares that they all were involved in a teaching-learning session aiming at developing the concept 'Domestic Animal'. You all observed how a lesson for developing a concept could be transacted. Let us reflect more on this strategy. The trainer initiates discussion along the following questions.

- What are the various phases of this strategy ?
- What are the main activities / processes in each phase ?
- What are the role of the trainer and trainees during each phase ?

- What support materials are necessary for implementing this strategies in common classrooms?
- In which phase the learners identify the critical attributes of the concept under learning?
- What is the importance of the activities in the second phase?
- What way analysis of learners' thought process influences concept development?
- Where should the main thrust lie when the strategy is to be used for lower elementary and upper elementary classes?
- How the strategy can be used as an evaluation tool?

**Self-check exercise**

Check your learning of the module through the following exercises.

Give a ' √ ' mark on one of the choices underlined which you think would make the statement right. Strike off the other choice(s).

1. Identification of critical attributes is a necessary / sufficient condition for concept learning.
2. A teaching learning session aiming at developing a concept among Kindergarten pupils has to give more emphasis on identification of critical attributes of the concept / analysis of thinking process during the process of induction.

3. In a concept learning session only examples / only non-examples / both examples and non-examples are presented to the learners.
4. This strategy for concept attainment is only a teaching strategy / both a teaching strategy and an evaluation strategy.

**Implications for classroom instruction**

In elementary grades concept learning finds an important place. In the normal classes children are encountered with many new concepts in learning the school subjects. This strategy can be effectively employed for facilitating concept attainment among elementary grade children.

**Key Learning Points**

An instructional strategy for facilitating concept attainment has 3 phases namely:

- Presentation of data;
- Testing attainment of the concept;
- Analysis of the thinking strategies.

Activities during the various phases are as follows.

**Phase – 1**

- Presentation of examples and non-examples of the concept;
- Learners induce the essential attributes of the concept
- Learners guess the concept.

**Phase – 2**

- Teacher presents additional unlabeled examples.
- Learners identify additional unlabeled examples saying 'Yes' / 'No'
- Teacher confirms students' hypotheses saying 'correct / incorrect'.
- Teacher declares the concept and states the definition according to essential attributes.
- Students generate new examples

**Phase – 3**

- Students individually describe their own thoughts, their progression until they know the right concept.
- Teacher facilitates metacognition of concept attainment
- With pre-school and lower elementary learners the main thrust lie on: the examples and the non-examples; highlighting the critical attributes and making the concept attainment (the inductive process).
- With upper elementary learners the main thrust lie on analysis of the thinking strategies (metacognition).

# MODULE - 9

## INSTRUCTIONAL STRATEGY FOR ORGANISING LEARNING

### Expected learning outcome

After completing this module a trainee will be able to:

(I) Explain what concept mapping is;

(II) List out the steps to be followed for preparing concept maps;

(III) Prepare concept maps in different subjects of elementary classes; and

(IV) State the uses of concept mapping for instructional and evaluation purposes.

### Overview

In every lesson there are some concepts / ideas. While learning a lesson pupils are supposed to pick-up the concept / ideas and try to organize them into an 'organizational network'. This process of grasping the ideas / concepts underlying a lesson and organizing them into meaningful organizational network(s) is covert, and is difficult to ascertain. Concept mapping (map) can be effectively used to facilitate active cognitive processing of a lesson and to know how a learner organizes the lesson in his brain. A concept map is a visual representation of a learners' knowledge and understanding of concepts and their interrelationship in a given area of knowledge. As an instructional strategy it is a way of graphically displaying concepts / ideas and their hierarchical interrelationships in a meaningful map. Concept mapping can be used both as an instructional tool and an evaluation tool. As an instructional strategy Concept Mapping:

(I) helps to organize and represent 'knowledge and constructs' in a subject;

(II) facilitates information processing;

(III) facilitates deep thinking and make thinking explicit;

(IV) visualizes the cognitive structure of knowledge, links and determines the relationship between textual and visual information; and

(V) enhances mastery and retention of facts; and facilitates meaningful learning.

As an evaluation / diagnostic tool Concept Mapping can be used to recognize the following:

(I) Inadequate understanding of abstract concepts;

(II) Inability to relate theoretical concepts with their experimental observations and results;

(III) Difficulty in ordering the various concepts learnt in a class / unit;

(IV) Lack of understanding to recognize weak links or even gaps in their knowledge.

**Learning Activities**

**Activity – 1**

The trainer initiates the activity by saying 'Here is a set of concept'. Let us think how these can be related to yield a theme or organized idea'. The trainer writes the following concepts on the blackboard in a disorganized way.

Matter, states of matter,

Solid, liquid, gas, water, vapour, ice,

Application of heat on matter,

Change in states of matter.

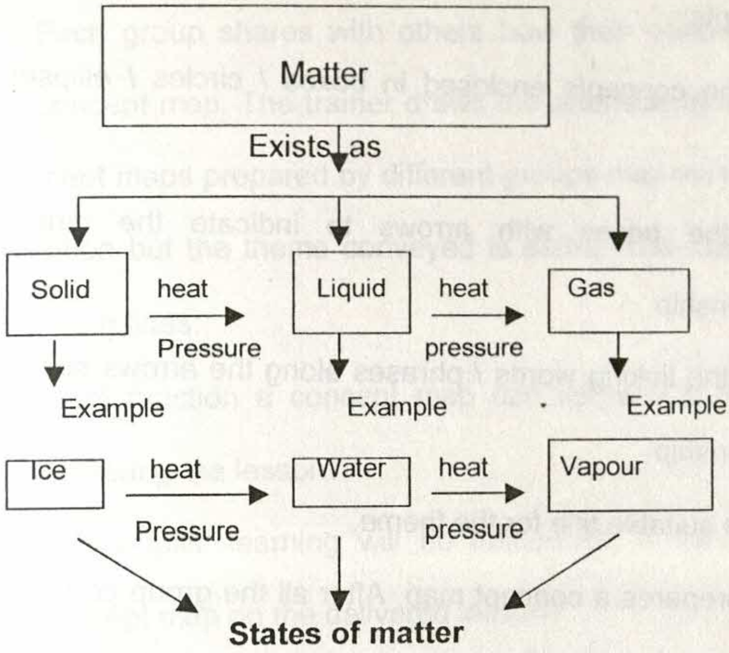
The trainer allows 3-4 minutes to the trainees to think in terms of:

- ❖ What could be the theme like?
- ❖ Which concept is related with what and how?
- ❖ What way these can be put into a schematic diagram?

After that the trainer proceeds to develop the concept map by raising the above questions to the whole group and consolidating the response:

- ❖ Write the principal concepts in boxes;
- ❖ Finalizes suitable linking words / phrases to describe concept – concept relationship;
- ❖ Links concepts (boxes) with arrows to indicate the direction of relationship;
- ❖ Write the linking words / phrases along the arrows;
- ❖ Give a suitable title to reflect the theme of the concept map generated through the above steps ('states of matter').

The following concept map will be the output



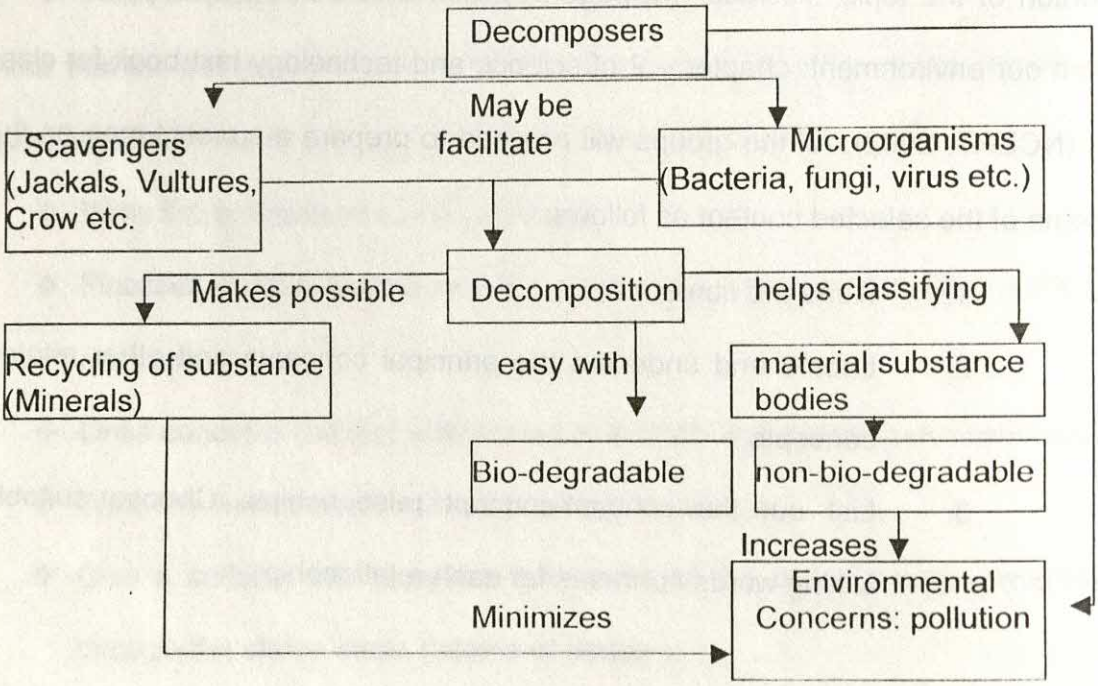
**Activity – 2:**

Trainees will be divided into 4 – 5 groups. All the groups will be assigned a portion of the topic, 'Animals' (at page 19), and article 2.2 'Biotic Environment' from our environment: chapter – 2 of science and technology text book for class VI (NCERT, 2002). All the groups will proceed to prepare a concept map on the theme of the selected content as follows:

1. Read the content
2. Locate and underline the principal concepts and other related concepts.
3. List out the concept-concept relationships. Choose suitable linking words / phrases for each relationship.

4. Plan out the hierarchy / position of the principal and the related concepts.
5. Plot the concepts enclosed in boxes / circles / ellipses on a paper.
6. Join the boxes with arrows to indicate the direction of relationship
7. Write the linking words / phrases along the arrows showing the relationship.
8. Give a suitable title for the theme.

This way each group prepares a concept map. After all the group complete their concept maps, the trainers presents the following model concept map; and each group compares the differences between the model concept map and that developed by them.



## Discussion

Each group shares with others how their concept map differs from the model concept map. The trainer draws the attention of the group to the fact that the concept maps prepared by different groups may vary in respect of schematic presentation but the theme conveyed is same. The trainees further discuss on the following lines:

- What function a concept map can serve if a teacher presents it after delivering the lesson?
- How pupils' learning will be influenced, if they are asked to prepare concept map on the delivered lesson?
- How a teachers teaching behaviour will be influenced if he prepares a concept map before delivering the lesson?
- Can concept map be employed to examine pupils learning?
- In which other subjects (other than science) concept mapping can be employed?
- How can concept map be used in language teaching?

## Self-check exercise

Check your learning of this module. Say Yes / No to the following statements.

1. A concept in a concept map occurs once. Yes / No
2. The concept maps prepared by two persons on the same theme may vary. Yes / No

3. Meaningful organization of knowledge is the goal of concept mapping as an instructional strategy. Yes / No

4. Concept mapping can be used only with the advanced learners. Yes / No

5. Without meaningful assimilation of content areas, one can prepare a concept map. Yes / No

6. Concept mapping when employed as an instructional strategy promotes rote learning. Yes / No

**Implication for classroom instruction**

Concept mapping can be effectively used for teaching-learning purposes. After a few practice sessions both teachers and pupils will learn to organize their ideas / knowledge meaningfully. After every teaching-learning session teachers and pupils can go for consolidating the knowledge through concept mapping. At elementary stage concept mapping may be used for concept learning, pre-writing activity, post-reading comprehension, generating new ideas, and home assignments.

**Key Learning Points**

❖ A concept map consists of hierarchically arranged nodes or cells that contain a concept, item or question and labeled links. The relationship between nodes / concepts are indicated by "Linking words" and an arrow symbol to describe the direction of relationship.

❖ Some examples of the relationship between two nodes / concepts are as follows:

Key words representing type of relationship:

| | | |
|---|---|---|
| 1. | Classification | 'for example', type of' 'kind of', 'for instance' etc |
| 2. | Subsuming defining | 'is a feature', 'is characteristics of', 'is defined as', 'is called' etc. |
| 3. | Equivalence | 'is identical', 'is the same as', 'like', 'is similar' etc. |
| 4. | Similar / Dissimilar | 'is similar', 'like', 'is not similar', 'un like', 'in contracts' etc. |
| 5. | Quantity | 'is more', 'is larger', is less' etc. |
| 6. | Causal | 'causes', 'produces', 'because' |
| 7. | Empower | 'enables', 'allows', 'strengthens' etc. |

Steps of concept mapping are

- Selection of the instructional content; highlighting the concepts; arranging the concepts; determining relationship, plotting the relationship, revision of the concept map.

- Concept maps may be used for instruction as well as evaluation purposes. Some specific uses are: linking old and new knowledge, consolidating the learning experience, diagnosing leaning weakness, concept teaching-learning, post-reading comprehension exercise, generating new ideas and pre-writing activity.

# MODULE - 10

## ISSUES IN LANGUAGE LEARNING AND DEVELOPMENT OF LANGUAGE SKILLS

### Expected Learning Outcomes

After completing this module a trainee will be able to:

- Point out the issues and problems of language teaching;
- List out the neglected aspects of language learning at elementary level;
- Identify issues and problems relating to the development of language skills in pupils.

### Overview

Learning of language at elementary level is given importance for communication point of view. A child receives and understands others' ideas and communicates his ideas to others through language. He has to develop listening and reading skills to receive and understand others, and to develop speaking and writing skills to communicate his ideas to others. Thus, development of listening, speaking, reading and writing skills in children is given importance at elementary level. Continuous efforts have been made for successful inculcation of those skills in children, but outcomes are not satisfactory. Teaching learning process in classrooms suffers from a lot of problems relating to facilities, materials, teaching strategies, and other aspects of learning language.

## Learning Activities

The participants of the training programme will be divided into different groups consisting of 5 to 6 participants. Each group will be asked to write the issues and problems of language teaching at elementary grades. After listing out the problems (1) they will categorize the problems under different headings relating to skills (listening, speaking, reading, and writing) and aspects of language (prose, poems, grammar, composition etc.)

## Discussion

Each group will present the list of the problems and issues before all. After presentation there will be detailed discussion on important issues and problems among groups to arrive at consensus in respect of issues and problems of language teaching. The important issues and problems of language teaching as emerged out of the discussion will be written on the blackboard. The participants will refer such list during self-assessment exercise

## Self –Assessment exercises

Does the list include following issues and problems?

1. Pronunciation activity is not given due importance.
2. Drilling activity is not sufficient in most of the situation.
3. Class room instruction is often devoid of real life situation.

4. Students activities are ignored and teacher activities dominate.
5. Remedial classes are not taken adequately.
6. Grammar and composition are the neglected aspects of teaching language.
7. The four language skills (listening, speaking, reading and writing) are not given due weightage in the classroom.
8. Creative writing is not practised in classroom instruction.
9. There is no scope and facility available for reading for pleasure.
10. Evaluation is not done continuously and comprehensively.

**Implication for classroom instruction**

The teacher will be aware of the problems of language teaching and devise strategies to solve problems in the classroom.

# MODULE - 11

## ACTIVITY BASED PLANNING FOR TEACHING LANGUAGE

### Expected Learning outcomes

After completing this module a trainee will be able to:

- Prepare a lesson plan on activity-based teaching with reference to a particular topic in language;
- Evaluate an activity-based lesson plan.

### Overview

Learners are not the passive listeners in the classroom. They are active discoverers. Learning on the part of the children becomes effective if they are actively engaged in teaching learning process. Therefore, teaching-learning process requires to be centered on activities. Planning and preparing for activity-based teaching is essential before executing the same in the classroom. So, knowledge in preparation of lesson plan based on activity-based teaching is needed on the part of the trainees.

The trainees will be divided into small groups consisting of 5 to 6 members. They will be asked to prepare an outline of a plan on activity-based teaching of a particular topic.

**Learning activity**

The trainees will be divided into small groups consisting of 5 to 6 members. They will be told that they are going to prepare an activity based lesson plan on language learning for an elementary class. Further they will be asked to proceed along the followings.

- Identification of a particular topic by all groups for preparation of a lesson plan.
- Formulation of learning objectives in terms of vocabulary, structures, pronunciation, spelling, theme, grammar components etc., in behavioural terms.
- Listening out of activities to be performed in the classroom both by teacher and learners separately to achieve learning objectives.
- Listening out of materials required to perform the activities.
- Procedures to be followed in execution of the activities (demonstration) observation, exhibition drilling etc.) to achieve learning objective.
- Techniques for evaluation of the pupils learning outcomes.

**Discussion**

After learning activity is over, the groups will be asked to present their lesson plans before others for detailed discussion. The trainer will facilitate the discussion to reach at a consensus with regard to the appropriateness and effectiveness of the activities.

The detailed discussion will be made in the light of specific learning outcomes, material to be used, procedures adopted for the teaching activity and evaluation. Then the consensus will be reached.

### Self-Assessment checklist

1. Do our lesson plans contain learning objectives clearly?
2. Do our lesson plans center on activities to achieve leaning objectives?
3. Do our lesson plans include appropriate materials to facilitate learner's activities?
4. Do our lesson plans mention the role of teachers?
5. Do the lesson plans provide sufficient scope for active participation of the learners?
6. Is there any scope for discussion and conversation among learners in our lesson plan?
7. Do our lesson plan include appropriate evaluation items to measure expected learning out comes of the lesson?

### Implications for classroom instruction

This module will help in preparing activity-based lessons on different topics to teach language subject effectively to children at elementary level.

# MODULE - 12

## EVALUATION OF LEARNING OUTCOMES IN LANGUAGE

### Expected learning outcomes

- After completing this module a trainee will be able to develop different types of test items to evaluate language-learning outcome.

### Overview

Evaluation is a part and parcel of teaching learning process. It starts with the beginning of teaching and ends with the completion of teaching learning process. As teaching of language aims at the development of four language skills, it is essential to evaluate the learning outcomes in respect of those skills to know the progress and weaknesses of the children in language subject. Further, development of different cognitive processes such as, knowledge, comprehension and application abilities of the learner should not be ignored. Therefore the language skills require to be evaluated in the light of cognitive processes.

### Learning activity

The trainee will be divided into small groups consisting of 5-6 members. Each group will prepare various test items relating to language skills /

instructional objectives on a particular topic. For example – "Trees" which has been selected from the modern English text- book meant for class-VI, published by NCERT.

**Discussion**

Each group will present their test items before all for detailed and open discussion. The main focus of the discussion will be on evaluation of instructional objectives with focus on skills of language learning.

**Self-check exercise**

(a) Do our test items focus on measuring listening, speaking, reading and writing skills?

(b) Do our items include sufficient oral questions to assess pronunciation ability of the children? For example: pronounce the following words correctly. Often, carbon dioxide, firmer, ourselves, against.

(c) Do our test items include questions to measure listening ability of the children? For example after listening to a paragraph, question may follow to tell or list out words starting with sound 'f' or 'd' or ending with 'st' etc.

(d) Do our test items consist of questions to test comprehension ability of the children?

(e) Do our comprehension test questions include action verbs such as, connects, distinguish, extends, generalize, give example, predicts, infers, give reason etc.?

(f) Do our test items evaluate the power of composition? For example – write a meaningful paragraph by using words – Tree, leaves, flower, beautiful, seeds and fruit.

(g) Do our test items consist of questions to measure the ability to arrange sentence in proper sequential order?

(h) Do our test item measure pupils' ability to guess meaning of new words.

(i) Do our test items measuring knowledge include action verbs like define, describe, identify, list, match, name select, state etc.

(j) Do our test items give proper direction to the children so that they understand the question clearly?

**Implication for classroom instruction**

This lesson can be helpful for the trainee to know the progress and weakness of the learner in learning language. So that he can modify his teaching learning process for the better achievement of the learner.

## MODULE - 13

# DEMONSTRATION OF LANGUAGE TEACHING

### Expected learning outcomes

- After completing this module a trainee will be aware of the procedure and techniques of teaching a poem through activity-based methods.

### Overview

The learners are not the passive receptors in classroom rather they are the active discoverers. Classroom situation is not devoid of real life situation. Thus, the classroom environment is a miniature form of real life environment. Language skills expand properly when the learners are actively engaged in the teaching-learning process. It facilitates the children's learning. Therefore, activity based teaching is the need of the day.

### Learning Activities

The trainer will demonstrate the activity based teaching on the topic 'What the leaves said' to class-VI students (selected from modern English Book, NCERT) in a real or simulated situation following procedures and techniques described below. The trainees will observe the demonstration.

### Activity No.1

The learners will be divided into four groups. The groups will be named Spring, Summer, Autumn and Winter. The following sentences will be presented before them and each group will be asked to select two sentences relating to the role of leaves appropriating to its name.

Birds take rest under our shadow.
We appear in the tree
We are happy and cheerful.
We take rest under the tree
We look bright red in colour
We make the shadow
We fall down from the tree
We grow slowly slowly

### Activity No.2

Since the poem consisted of four stanzas describing the beauty of the tree in four seasons, the lines of the poem will be rewritten in a puzzled manner for each stanza and the same will be distributed to the groups appropriating to their names. They will be asked to arrange the lines in a proper order so that the lines will be a meaningful stanza of a poem. After that, they will be asked to read out the stanza that they made one after another.

**Activity No.3:**

The trainees will recite the poem from the original text.

**Activity No.4**

Evaluation will be made through the following questions :

Q.1. Match the role and function of tree given in column 'B' with the name of season in column A

| Column A | Column B |
|---|---|
| Spring | lay down and sleep |
| Summer | open and stretch |
| Autumn | make the shadow |
| Winter | look gay |
|  | Look gray |

Q.2. List out the rhyming words in the poem.

**Discussion**

After demonstrating the poem, the trainer will initiate detailed discussion among the trainees with regard to the activities undertaken, procedures followed and techniques adopted during teaching. Besides these, the role of the trainees and trainer will be discussed. The consensus ideas with regard to process and procedures of activity based method to teach a poem in English will emerge out of the discussion.

### Self-check exercises

Following are the questions through which the trainees will be able to assess themselves to know how far they acquired knowledge on activity method of teaching a poem.

(a) Do the learners get sufficient opportunity to participate in the teaching-learning process? Yes / No

(b) Does the trainer play the role of a facilitator? Yes / No

(c) Does the trainer use motivational techniques during the teaching-learning process? Yes / No

(d) Are the learners interested in learning? Yes / No

(e) Do the learners enjoy teaching? Yes / No

### Implications for classroom instruction

Activity based teaching can be followed for teaching almost all topics of a language text book prescribed for elementary school level to make the teaching-learning process participatory and joyful.

# MODULE - 14

# PROBLEMS AND ISSUES IN TEACHING OF MATHEMATICS AT ELEMENTARY LEVEL.

## Guidelines for transacting the module

| Sl. No | Aspect of the module | Time | Role of the trainer | Role of the trainee | Remarks |
|---|---|---|---|---|---|
| 1. | Expected learning outcomes | | Trainer reads this aspect of the module prior to transaction of the module to make the module transaction goal oriented. | | |
| 2. | Overview | 5 min | The trainer presents the overview by way of introductory discussion on the module and motivates the trainees for transacting the module. | The trainees anticipate what they are going to learn and how the module is to be taken up. | |
| 3. | Learning activity | 40 min (25+8+7) | Causes the learning activities to happen. | Participates in the activities. | |
| 4. | Discussion | 15 min. | Anchors and moderates the discussion. | Participates in the discussion. | |
| 5. | Self-check exercises. | 5 min. | Asks the trainees to assess their own learning of the module. | Individually takes up the self-check exercises to evaluate his / her learning of the module. | |
| 6. | Implications for classroom instruction. | 10 min. | Directs a few participants to share his / her thought with the group. | Individual visioning and reflection for classroom situation. | |

### Expected learning outcome

After completing this module a trainee will be able to:

- List out the problems / issues of teaching and learning mathematics in the elementary classes;
- Classify the problems as 'learner-related', 'teacher-related', 'method / material' related and 'community / parents' related;
- Judge the seriousness of the problems and classify them as 'more serious' and 'less serious';
- Identify the problems, which can be alleviated through activity-based instructional strategies.

### Overview

Teaching and learning of mathematics in the elementary classes finds many problems and issues. The sources of such problems are manifold-learners, teachers, teaching-learning materials, method and parents / community. The intensity and concerns of the problems are not similar. Many problems can be solved at the level of teachers. Others may require multiple efforts by other agencies. Adoption of activity based instructional strategies can alleviate many of the problems.

## Learning activities

### Activity – 1

The trainer conducts with the trainees a brainstorming session generating a list of problems and issues (to be written on the black-board) associated with mathematics instruction at elementary level and the probable factors responsible for each. Thus the trainees gather a list of problems and issues written in a tabular form.

**List of problems and issues associated with mathematics instruction at elementary level.**

| Sl.No | Problem / Issues | Factor(s) associated |
|---|---|---|
| | | |

### Activity – 2

The trainer reads an item aloud, asks the trainees to raise hands those who feel the read out item is a 'more serious problem'. He counts their number. If the count exceeds 60% he gives a tick mark ' √ ' to indicated 'more serious'.

Thus the activity produces two lists of problems, one of 'more serious problems' and the other of 'less serious problems".

### Activity – 3

In the same way (as in case of activity-2) the trainees identify the problems which are related more to classroom teaching-learning process and which may be addressed by adoption of activity-based teaching-learning strategies.

### Discussion

The trainer initiates discussion among the trainees to share thoughts / views among themselves in respect of the followings.

- Whether a problem can be attributed to only one specific factor? If not what does it imply?
- How does the problem differ in respect of single class and multiple class teaching situations?
- What peculiarities do the problems of pupils in learning mathematics at class I, II and III and those of pupils at higher elementary classes exhibit?
- (The trainer picks up one / two problems of teaching-learning math in classes and initiates discussion regarding how activity-based teaching can minimize the problem(s).

## Self-check exercises

Through the activities you learnt much about the problems in teaching-learning of mathematics at elementary level. A list of some serious problems is given below. Check what you have identified and what you have missed.

### Problems and issues in teaching of mathematics at elementary level.

1. Mathematical concepts, facts and principles are taught in abstract manner.
2. Backwardness in mathematics among pupils often left undiagnosed and untreated.
3. Mathematics instruction is not linked to daily life situations.
4. Rote memorization is dominant in learning mathematics.
5. Workbooks are not available / utilized properly.
6. Oral exercises in mathematics are inadequate.
7. Home assignments are either meager or absent; wherever present those are less often corrected.
8. Mathematics corners in classrooms are absent.
9. Mathematics teaching lacks in due emphasis on promotion of thinking, reasoning, problem solving and decision-making.
10. Teaching is not activity based and learner-driven.
11. Content knowledge among teachers is inadequate
12. Professional commitment and willingness among teachers is low.

13. Teachers are not competent to improvise contextually relevant learning methods, materials and environment.

14. Difficulties in teaching some concept because of non-mastery of some earlier concepts caused through irregular attendance of pupils.

### Implications for classroom instruction

Many of the problems of teaching-learning mathematics have their roots in the instructional strategies adopted in our classrooms, although other factors may be responsible. Some problems are more serious and hence to be tackled on priority basis. The situation can be improved through activity based instructional strategies.

# PREPARATION OF ACTIVITY BASED LESSON PLANS IN MATHEMATICS FOR ELEMENTARY CLASSES.

**Guidelines for transacting the module.**

| Sl. No | Aspect of the module | Time | Role of the trainer | Role of the trainee | Remarks |
|---|---|---|---|---|---|
| 1. | Expected learning outcomes | | The trainer reads this aspect of the module to make the module transaction goal oriented. | | Materials required. 1. Text books of class 1-7 |
| 2. | Overview | 5 min | The trainer presents the overview by way of introductory discussion on the module and motivates the trainees for transacting the module. | The trainees anticipate what they are going to learn and how the module is to be taken up. | 4-5 sheets of paper to write for each trainee. |
| 3. | Learning activity | 30 min | Causes the learning activities to happen. | Participates in the activities of a subgroup. | |
| 4. | Discussion | 30 min. | Anchors and moderates the discussion. | Participates in the discussion. | |
| 5. | Implications for classroom instruction. | 10 min. | Directs a few participants to share his / her thought with the group. | Individual visioning and reflection for classroom situation. | |

## Expected learning outcomes

After completing this module a trainee will be able to:

- Explain 'what is activity based lesson'?';
- State the important features of an activity based instructional session / lesson;
- Plan and design an activity-based lesson in mathematics for an elementary class;
- Actually develop an activity-based lesson plan for an elementary class;
- Evaluate the strength and weakness of an activity based lesson plan.

## Overview

Activity based lesson planning presumes that children form meanings and concepts through their interaction with the environment. An activity based teaching-learning session provides appropriate activities specific to a group of learners and to the goals of learning. An activity-based lesson puts emphasis on learning process rather than on content, on learner rather than on teacher, on learning rather than on teaching. An activity based lesson plan clearly speaks the followings.

(a) The set of learning objectives to be achieved;

(b) The activities to be carried out to attain each learning objective;

(c) List of resources (materials/objects) required;

(d) Role-relation of teachers and pupils during, before and after the activities;

(e) Ways for consolidating the learning experiences;

(f) Evaluation strategies.

**Learning activity**

The trainees divide into 4-5 subgroups. Each group selects a topic for a class. Each group does the following activities to plan an activity-based lesson.

**First phase**

1. Lists out each group the teaching-learning points from the chosen topic
2. States the learning objectives
3. Plans what activities are to be conducted by learners for achieving the learning objectives.
4. Lists out the resources (materials / objects) required for each activity
5. Specifies clearly what are the roles of the teacher and pupils.
6. Plans how to consolidate the learning experiences of pupils.
7. Plans how to evaluate the pupil's learning out comes.

**Second phase**

Each group then proceeds to develop the activity based lesson plan on the topic chosen. They may use the following format.

**Format for writing an activity based lesson plan.**

Class __________

Topic __________

Lesson Plan

| Teaching-learning points | Learning objectives | Materials | Teacher's activity | Pupils' activity | Evaluation strategies |
|---|---|---|---|---|---|
| | | | | | |

**Discussion and sharing**

The trainer asks each group to present and share their lesson plan. After presentation by a group the trainees discuss the lesson plan on the following points.

- Are the objectives clearly and comprehensively stated?
- Are the proposed activities relevant and suitable with respect to the target learner group?
- Shall the activities be enjoyable to learners?
- Is there ample scope for free involvement of learners during the activities?
- Are the teaching-learning materials listed activity-wise?
- Are the roles of the teacher and pupils explicit?
- Are the ways of consolidating the learning experiences clearly spelt out?
- Are the evaluation strategies appropriate?
- Can the lesson plan be implemented in a normal classroom period?
- How is the over-all quality of the prepared plan?

**Implications for classroom instruction**

Mathematics at elementary level can be learnt effectively through activity-based lessons. Activity based teaching of mathematics can minimize many of the problems and issues at elementary level.

# EVALUATION OF LEARNING OUTCOMES IN MATHEMATICS

## Guidelines for transacting the module

| Sl. No | Aspect of the module | Time | Role of the trainer | Role of the trainee | Remarks |
|---|---|---|---|---|---|
| 1. | Expected learning outcomes | | Trainer reads this aspect of the module prior to transaction of the module to make the module transaction goal oriented. | | Materials required.<br>1. Text books of class 1-7 |
| 2. | Overview | 5 min | The trainer presents the overview by way of introductory discussion on the module and motivates the trainees for transacting the module. | The trainees anticipate what they are going to learn and how the module is to be taken up. | 4-5 sheets of paper to write for each trainee. |
| 3. | Learning activity | 40 min (25+8+7) | Causes the learning activities to happen. | Participates in the activities. | |
| 4. | Discussion | 15 min. | Anchors and moderates the discussion. | Participates in the discussion. | |
| 5. | Self-check exercises. | 5 min. | Asks the trainees to assess their own learning of the module. | Individually takes up the self-check exercises to evaluate his / her learning of the module. | |
| 6. | Implications for classroom instruction. | 10 min. | Directs a few participants to share his / her thought with the group. | Individual visioning and reflection for classroom situation. | |

## Expected learning outcomes

After completing this module a trainee will be able to:

- Identify the expected learning outcomes in mathematics – cognitive, affective and psychomotor outcomes in a given topic from mathematics text;
- Design and develop appropriate tools and techniques (achievement tests – very short answer, alternative, multiple choice and column match questions), activities and assignments for a set of identified learning outcomes;
- To explain how to integrate the learning activities and the evaluation activities, and to vary them with class size, multiple class teaching situations and home assignments.

## Overview

Learning outcomes in mathematics may be of cognitive, affective and psychomotor type. The tools for evaluation of mathematics learning outcomes can be achievement tests (oral and written), assignments and activities (individual and group). All tools of evaluation may not be suitable for evaluating all types of learning outcomes. Activity based instructional process often require the same activity for the dual purpose of learning and evaluation to make them implementable in a class. Through the following activities let us learn identifying the pupils' expected learning outcomes underlying a chosen topic and designing suitable evaluation tools.

**Learning activities**

- Trainees are divided into 4-5 subgroups. Each group selects a topic, identifies the learning outcomes in one / more areas – cognitive, affective and psychomotor.
- Each group selects appropriate evaluation tool (s) – achievement tests (written / oral), assignment / activity to assess the identified learning outcomes. Then the group prepare actual test items / activities for each learning outcome.

**Discussion**

Each group shares with the rest of the trainees the chosen topic, identified learning outcomes, appropriate evaluation tools (with justification) and the exact test items / evaluation activity.

The discussions examine:

- Whether evaluation tools (tests / activities) and learning outcomes are compatible;
- Which learning outcomes can be better evaluated through activities / assignments;

- Can there be the same activity both for instruction and evaluation in a topic;
- Can the suggested evaluation activities:

(a) Be taken up in a large class;

(b) Be carried out in multiclass teaching situations;

(c) Be used for home assignment;

(d) Be implemented easily in a common class;

**Self-check exercises**

Check your learning of the module. Read each statement and ' √ ' mark on your choice to indicate your responses as 'Yes' / 'No'.

1. Every topic in a mathematics textbook has some expected learning outcomes underlying it. Yes / No
2. Identifying expected learning outcomes is a prerequisite to design and development of an evaluation tool / technique. Yes / No
3. One tool of evaluation can serve the purpose of evaluating all types of learning outcomes. Yes / No
4. Learning outcomes of affective categories in mathematics are to be evaluated with achievement tests. Yes / No
5. Evaluation tools / techniques may vary with class size and multiclass situations. Yes / No

6. There are some learning outcomes for which only activities are most suitable. Yes / No

7. An activity asking learners to arrange a set of given objects on order of bigger to smaller can be a learning activity as well as evaluation activity. Yes / No

Find your result:

1.Yes 2. Yes 3. No 4. No 5. Yes 6. Yes 7.Yes

**Implication for classroom instruction**

Evaluation of learning outcomes will make teaching-learning process well monitored and successful.

## DEMONSTRATION OF ACTIVITY BASED TEACHING IN MATHEMATICS

## (UNDER REAL / SIMULATED SITUATION)

**Guidelines for transacting the module**

| Sl. No | Aspect of the module | Time | Role of the trainer | Role of the trainee | Remarks |
|---|---|---|---|---|---|
| 1. | Expected learning outcomes | | Trainer reads this aspect of the module prior to transaction of the module to make the transaction goal oriented. | . | |
| 2. | Overview | 5 Min | The trainer presents the overview by way of introductory discussion on the module and motivates the trainees for transacting the module. | The trainees anticipate what they are going to learn and how the module is to be taken up. | |
| 3. | Learning activity | | Causes the learning activities to happen | Participate in the activities | |
| 4. | Discussion | | Anchors and moderates the discussion | Participates in the discussion | |
| 5. | Implications for classroom instruction | | Directs a few participants to share his / her thought with the group. | Individual visioning and reflection for classroom situation. | |

## Expected learning outcomes

After completing this module a trainee will be able to:

- (a) Deliver an activity-based mathematics lesson successfully;
- (b) Understand the realities that come out during the delivery of an activity based mathematics lesson in an elementary class;
- (c) Evaluate the delivery of an activity-based lesson.

## Overview

Effective delivery of an activity-based lesson in mathematics involves:

- (a) Proper execution of the teaching –learning and evaluation activities;
- (b) Maximum pupils' participation and spontaneous involvement;
- (c) Timely consolidation of learning experiences;
- (d) Minimum imposition / interference by teachers;
- (e) Meeting the situational demand(s) during lesson delivery.

## Learning activity

One member of sub-group volunteers to demonstrate the delivery of an activity-based lesson (prepared in the previous module No.15). The other trainees observe and take notes on lesson delivery, clearly mentioning the strength and weakness.

**Discussion**

The trainees discuss the success and failure of the lesson delivery with constructive suggestions pointing how the lesson delivery could have been performed better. The trainer ensures the focus of discussion lies on the following points.

(a) Could the teacher manage the teaching-learning activities properly?

(b) Whether most of the pupils participated in the activities?

(c) Was the teacher encouraging the pupils to participate?

(d) Was the teacher consolidating the learning experiences appropriately in time?

(e) Was the teacher giving freehand to pupils?

(f) What were the items of appreciation in the lesson delivery?

(g) Was the teacher meeting the situational demands successfully during lesson delivery?

(h) How the lesson delivery could have been performed better?

## Implications for classroom instruction

- Pupils at elementary classes can attain the desired learning objectives through activity based instructional strategy.
- The success of activity based lessons demands careful selection and design of appropriate activities.
- Free and spontaneous involvement in part of learners makes learning joyful.

## MODULE - 18

# PROBLEMS AND ISSUES IN TEACHING OF EVS-I (SOCIAL STUDIES)

### Expected Learning outcomes

After completing this module a trainee will be able to:

(a) Identify the problems and issues relating to the teaching of EVS-I (Social Studies);

(b) Classify the problems relating to the teaching of EVS-I;

(c) Find out ways and means of solving those problems during curriculum transaction.

### Overview

The teaching of EVS-I (Social studies) is beset with a number of problems and issues. The interdisciplinary nature of EVS-I is the main issue in teaching. In spite of best effort made by curriculum framers and textbooks writers, the physical, social and cultural aspect of the environment is yet to find full integration in the subject. Academic problems like difficulty in providing real situations during teaching, giving more emphasis to content rather than the process, difficulty in evaluating activity based learning as well as changes in the affective characteristics of the learner as a result of teaching EVS-I limit effective functioning of the teacher. Administrative problems, materials, aids and equipment also plague teaching. Organizational problems relating to teaching of EVS occur while seeking community cooperation for taking the help of community members as resource person for teaching and in using community facilities. The mindset of supervisors need to be changed to permit and guide field study and visits essential in EVS-I. The existing curriculum in EVS-I is not need based to allow flexibility. The teaching units are non-stimulating in nature. The teacher should be aware of these and other problems and issues, so that he can work for their solution, within his personal limitations, so that teaching becomes fruitful.

**Learning Activities**

The participants may be divided into small groups of manageable number. They are to enter into discussion group wise to identify the problems and issues in teaching EVS-I and enlist them. The trainer will intervene in groups where the participants are not able to identify any problem and issue. The groups will then discuss about solution to these problems.

**Discussion**

The groups will then set in a common group for a plenary discussion about problems relating to teaching of EVS. The problems may be listed by the trainer under 3 different categories viz. administrative, academic, organizational or other categories as suggested by the participants. There will be commonality and differences among groups, which have to be sorted out before making the final list. The trainer can add to the list suggested by the participants if required.

Having listed and categorized the problems and issues, the solution to different problems suggested by individual groups should be discussed; a consensus reached and written on the board.

**Self-check exercise**

(1) Interdisciplinary nature of EVS implies integration of social and scientific components. Yes / No

(2) Learning concepts in EVS is more effective if teaching is imparted in a real life situation rather than contrive situation. Yes / No

(3) Community involvement hinders the teaching of EVS-I. Yes / No

(4) Supervisors of elementary school teachers should be supportive of field visits undertaken by teacher for teaching EVS-I topics. Yes / No

(5) The affective changes brought about in pupil's behavior as a result of teaching EVS-I can be precisely measured after completion of the unit. Yes / No.

(6) The problem of lack of aids and equipment can be taken care of by improvisation of teaching aids. Yes / No

(7) Problems in teaching of EVS-I can be categorized under administrative, academic and organizational only. Yes / No

## Implications for classroom instruction

(1) The problem of lack of aids and equipment in teaching of EVS can be solved to certain extent through improvisation.

(2) Real life situations in EVS-I teaching may not be always possible and the situation can be taken care of by substituting them with contrived situations like "mock parliament".

(3) The teacher should not lose sight of developing the process skills during teaching.

(4) Affective changes in learners as a result of teaching EVS can be measured planning for a long-term basis through continuous observation over the years.

(5) Teachers should use the community resources for teaching EVS-I

# MODULE - 19

## PLANNING FOR ACTIVITY BASED TEACHING LEARNING IN EVS-II (SCIENCE)

### Expected learning outcomes

After transacting this module the trainee will be able to:

- Explain how to plan for activity based teaching learning in EVS-II (Science);
- Identify and state the learning objectives in a topic in EVS-II;
- Prepare learning activities according to the learning objectives identified.

### Overview

In learning science, the essence lies in developing scientific skills among the learners through the processes like observation, recording, classification, experimentation, drawing influence, manipulating variables etc., which are least amenable to conventional teaching methods like lecture and lecture-cum-demonstration. Activity based learning, in addition to developing the above skills, shifts emphasis from product to process, makes learning learner-centered instead of teacher-centered, and puts the learner in the position of a discoverer. In the approach, paradigm shift occurs in the teaching-learning process, as the learner instead of submitting to conformity and being passive recipient of knowledge, is stimulated to independent thought and action. Hence, activity based teaching in science is of paramount importance.

**Learning activities**

The trainees are divided into small groups of manageable number. The trainer in discussion with the trainees will select a topic on science from any one of the textbooks from class-IV to VIII. Each group will be asked to discuss the content on the topic in detail and identify the learning objectives. Further, they will be asked to suggest appropriate learning activities for realization of the learning objectives. They will also list out the materials to be required for conducting learning activities and suggest appropriate evaluation procedure for each learning objectives. After completion of the above work, each group will be required to prepare its report in the following format.

Class –

Topic –

| Teaching-learning points | Learning objectives | Learning activities | Materials required | Evaluated procedure |
|---|---|---|---|---|
| | | | | |

The group work is to be completed within 25 minutes.

### Discussion

The trainer, on completion of the group work, will ask each group to present its report and participate in the discussion. The discussion will be made aspect wise one after the other such as, teaching learning points, learning objectives, learning activities, materials to be required for conducting learning activities, and evaluation procedure and tools. While discussing on each aspect the observations made by the different groups as presented in their group report will be thoroughly discussed to reach at consensus, which is to be written on the blackboard. On completion of the discussion and on the basis of the consensus arrived at each aspect, as per the above sequence, the final lesson plan will emerge.

### Self-check exercise

The trainees will be asked by the trainer to plan for conducting activity based teaching learning in science individually in assigned topics from the textbooks as stated above and check their lesson plans through the following self-check questions.

(a) Have objectives of learning been enlisted in the plan?

(b) Have you enlisted all the teaching points of the lesson / topic assigned to you?

(c) Does your plan include learning activities for each of the learning objectives?

(d) Can the learning materials suggested for organizing learning activities be locally procured or improvised?

(e) Does your evaluation correspondence to the different learning objectives that you have enlisted in the plan?

### Implications for classroom teaching

Teachers can plan for teaching all the topics in the textbook through activity based learning method. Activities can be organized through field visit outside the classroom as well as inside the classroom. This module may help the teacher for planning their lessons for activity-based teaching.

# MODULE - 20

# EVALUATION OF LEARNING OUTCOMES IN EVS-II

## Expected learning outcomes

After completing this module a trainee will be able to:

- Identify the expected learning outcomes in environmental studies-science;
- Classify the learning outcomes in terms of cognitive, affective and psychomotor domains;
- Devise evaluation tools in relation to the nature of different domains and in conformity with the learning objective.

## Overview

Conventionally, our teachers are adapted to various kinds of teaching methodology. They are able to teach effectively by using various teaching models. It is presumed by the teacher that the student is learning automatically. But actually, students are not able to receive the content that are being taught. In other words, it is the duty of the trainer to know how far the learner is internalizing the contents. So the teacher should examine the learner, both qualitatively and quantitatively. It is needless to say that the learning outcomes play an important role in guiding the teacher towards the goal of teaching and classroom transaction modalities. Hence, the trainees are expected to devise appropriate evaluation techniques and tools to measure the learning outcomes.

## Learning Activities

The trainees will be grouped in four to five small groups.

Each group will be given a science textbook of a particular class and be asked to:

- Select a topic from the text;
- Read the topic bit by bit;
- Identify the expected learning outcomes domain wise;
- Clarify the learning outcomes in clear cut terms;
- State the learning outcomes in behavioural terms using action verbs;
- Decide the process of transaction in activity method;
- Prepare evaluation tools in that topic.

The evaluation tool should measure the behavioural change in the learner, clarification of conceptual framework and performance of learner. Each evaluation sheet should be accompanied with answer sheet.

Then each group will present their topic for general discussion. Necessary correction and modification will be made and final draft will be prepared.

**Discussion**

The following points may be taken into consideration during the learning activity:

- Whether the steps followed by various groups are same or different? If same, state the different steps group wise.
- Do the steps in transaction initiate active learning? Yes / No
- Whether the tools used in various group are different? If Yes, list them
- Whether the learning time in various groups are different? If yes, arrange them in terms of time consumption.
- If a single teacher can teach in various groups?
- Do the teacher need to posses a specific set of competencies to deal with different groups? If so, state the competencies the teacher should possess

**Key learning points**

The teacher-educator should be able to:

- Know the purpose and objectives of evaluation in relation to EVS-II.
- Devise evaluation tools in relation to EVS-II and experiment it in classroom situation
- Modify the evaluation tools on the basis of feedback received during experimentation.

**Self-check exercise**

(a) Evaluation of EVS content should be both oral and written. Yes / No

(b) Evaluation of environmental concept may be made outside the classroom. Yes / No

(c) All the concept of EVS can be evaluated. Yes / No

(d) Evaluation in EVS should be trainer guided. Yes / No

(e) Evaluation in EVS can be intervened with content only. Yes / No

(f) Evaluation of EVS can't be done in all domains. Yes / No

(g) Experimentation and observation are two basic tools in evaluation of EVS. Yes / No

(h) It is difficult to clearly find out the learning outcome of each topic. Yes /No

(a) Y (b) Y (c) Y (d) N (e) N (f) N (g) N (h) Y

**Implication for Classroom Instruction**

(a) Increases the knowledge base of trainer and learner

(b) Evaluation helps to get feedback on various aspects of content. The content can be modified as per response received in evaluation.

(c) The teacher will be able to know how far the learner has accepted his teaching.

(d) The teacher will assess his own ability on content and process of transaction.

(e) He can assess his teaching by using various evaluation tools and modify his teaching accordingly.

# MODULE - 21

## ACTIVITY BASED TEACHING IN EVS-1 (SOCIAL STUDIES)

### Expected learning outcomes

After completing this module a trainee will be able to:

- Explain the meaning of activity based teaching learning process;
- Design an activity based learning session in EVS-I;
- Develop an activity based leaning session in EVS-I;
- Evaluate the strengths and weaknesses of his developed plan.

### Overview

Conventionally our teachers at elementary school stage give thrust on specialized knowledge. They think leaning as a product. They think that knowledge can be transmitted from the teacher to learner. Teacher is regarded as an expert. It is assumed that learners' mind is a clean state as if, they know nothing about the chosen topic. The learner remains passive in the process. It is the duty of the learner to copy or confirm the vision of teacher. The teacher transmits / transact the concept of EVS inside the classroom without providing first hand knowledge to the learner.

On the other hand, activity based learning stipulates learning as a process, and process is more important than the product. Spontaneous and active involvement of learner in the teaching-learning process makes learning more enjoyable and objectives achievable. It is a challenge to both learner and the teacher. Teacher is a facilitator.

### Learning Activities

The trainees will be divided into four homogenous groups. Each group may be homogenous and be asked to conduct the following activities:

(a) Select a specific content on EVS-I and identify the learning objectives.

(b) Identify the procedure of transacting the lesson.

(c) Devise the teaching-learning materials required for the chosen topic.

(d) Determine the key concept of the chosen topic to be learnt by the learner

(e) List the supplementary teaching-learning materials required if any for transacting the lesson.

### Discussion

The teacher educator may initiate discussion on the following points:

- Whether the steps followed in various groups are same?

  If not, state the different steps of grouping

- Do the steps of the strategy initiate active learning? If yes, Justify
- Whether the teaching learning materials used by various groups are different? If yes, what are they?
- Whether the learning time differs from group to group? If yes, arrange them in order of time consumption
- If a single teacher can teach in various groups?
- Do the teacher needs to possess specific set of competencies to deal with different groups? If so, state the competencies the teacher should possess.

**Key learning points**

- The trainees can develop an activity-based lesson on a particular content looking at the ability of the learner.
- Activity based learning ensure active involvement of learner.
- It stipulates not to put something in the minds of the learner but to draw out what is already in the mind of the learner in relation to chosen content areas.

**Self-check Exercise**

(1) The major focus of activity-based learning is on learner.

Yes / No

(2) Activity based learning requires cooperative learning and brainstorming by the trainer. Yes / No

(3) Activity based learning requires complete involvement of learner in the process. Yes / No

(4) All the contents in EVS can't be taught in activity-based learning. Yes / No

(5) Activity-based learning in EVS involves competition among the learners. Yes / No

(6) Self-learning is more vibrant in activity based learning. Yes / No

(7) Evaluation of activity-based teaching requires separate time. Yes / No

(1) Y (2) N (3) Y (4) N (5) N (6) Y (7) N

**Implications for Classroom Instruction**

(a) Increase the knowledge base of learner and trainer.

(b) Develops ability to clarify the concepts.

(c) Activity based learning is a method. Any procedure that ensures active involvement of the learner in the process is called activity-based learning.

(d) The classroom process becomes intellectually vibrant

(e) The activity-based learning enhances both divergent and convergent thinking.

## MODULE - 22

# MANAGEMENT OF CO-SCHOLASTIC ACTIVITIES

### Expected Learning Outcomes

After completing this module a trainee will be able to:

- Identify appropriate activities in work education for the pupils of different grades at elementary stage;
- Organize different work education activities;
- Involve community in such activities; and
- Evaluate the work education activities.

### Overview

Manual work was an integral part of educational system during the ancient period. But this has been a neglected area of school education. Work experience offers more opportunities, flexibility, and freedom as compared to scholastic activities for natural and creative expression of potentialities. The national policy on education 1986 and its programme of action (1992) have emphasized inclusion of work experience in the existing school curriculum with appropriate weightage. The activities under work experience can be identified basing on the grade level and resources – material and human, available in school as well as community. The low cost, waste and readily available materials, such as, paper, seeds, sticks, rope, leaves, clay etc. can be utilized for the purpose. However, effectiveness of such activities depends mostly on the ability of teacher to identify, organize and evaluate the activities compatible to a particular grade level.

**Learning Activities**

The trainees will be divided into 5 groups to deal with work education activities of five grade levels of elementary education. Each group will be asked to do the following activities with reference to the respective grade:

(a) State the goals of the work experience activities for the grade;

(b) List out the appropriate activities;

(c) Select one in consensus;

(d) List out materials required for organizing the activities;

(e) Suggest community support -human and material;

(f) Suggest operational strategies for organizing the activity; and

(g) Decide parameters for assessment of the effectiveness of the activity.

**Discussion**

Each group will present its group work and shares with the members of other groups. Each group's presentation will be followed by critical examination of the group activity in terms of practical relevance and utility. After presentation by all the groups the trainer initiates discussion along the following points:

(I) Are there any common activities across the groups? If so, identify them.

(II) Are the materials drawn from the immediate environment?

(III) What type of community support is needed for conducting / organizing activities group wise?

(IV) Are there any common parameters to assess the impact of activities suggested by different groups?

(V) Can all the activities listed out by different groups be organized in classroom only?

If no, group the activities that can be organized in classroom, in school campus and the community.

**Self – check exercises**

(I) Some activities in work experience may be common for more than one grade. Yes / No

(II) All the activities need not involve community support. Yes/ No

(III) Both human and material resources are required to organize different activities. Yes / No

(IV) The parameters needed to assess the effectiveness vary. Yes / No

(V) Work experience activities can be organized in classroom, in school campus and community. Yes / No

**Implications for Classroom Instruction**

- ➢ Enhances cooperative learning and team spirit
- ➢ Develops the value of dignity of labour between teachers as well as learners.
- ➢ Makes the learning joyful and participatory
- ➢ Enhances sensory motor skills of the learner.
- ➢ Develops the sense of responsibility among learners as well as teachers.
- ➢ Develops life skills
- ➢ Develops scientific temper

Note : There are many areas of 'co-scholastic activities' such as 'work education', 'art education', 'health education', etc. This module is confined to the management of 'work-education' only. Similar modules may be prepared for other areas.

## MODULE - 23

# COMMUNITY SUPPORT FOR ELEMENTARY EDUCATION

### Expected learning outcomes

After completing this module a trainee will be able to:

- Explain the meaning and nature of community participation;
- Appreciate the need for community participation from the point of view of universalisation of elementary education;
- Point out the causes of inadequate community participation in elementary education and take corrective steps; and
- Identify the areas in school programme in which community participation is required in terms of feasibility so as to make the school a community school.

### Overview

In order to realize the mission of U.E.E and upgrade the quality of elementary education school-community relationship is recognized as one of the important inputs. Similarly improvement of community life has become one of the aims of school converting school as a window for carrying out all developmental activities in the community. A teacher, to be effective, must work with the community, not just for the community. This module aims at developing in teachers an insight into various aspects of community participation in educational programmes at the elementary level and enhancing their ability to enlist community support to widen access and ensure success of elementary level learners.

## Learning Activities

### Activity - 1

Community participation has been emphasized in the National Policy on Education, 1986, revised in 1992 for U.E.E. Generally we tend to believe that help rendered by the community members is community participation. From your experience, suggest different activities undertaken by community members for an elementary school. Each of the participants is asked to say an activity undertaken by community members. The resource person will write the activities suggested by them on the blackboard.

Some of the activities may be:

- The community realizes the need for a school and raises funds for developing infrastructure required for the school.
- The community members provide physical facilities for running a school.
- The community members send their children to school.

**Discussion**

The trainer may put the following questions for discussion:

(I) Are the activities of the community as suggested by the different groups the same?

(II) How can we classify these activities?

(III) In a democratic society like ours which type of participation is desirable?

The resource person, on getting answer to these questions from the participants, will classify them into three categories such as spontaneous, compulsory and sponsored. Further, the trainer will clarify that spontaneous participation is the most desirable form of participation under democratic set up. The participants too will be asked to categories the activities they have proposed.

A participant will be asked to reflect situation from his experience where he feels the need for community support and others will suggest ways and means to obtain community support.

**Activity - 2**

Trainees will be asked to note down the activities that the schools can undertake to maintain good relation with the community and obtain its participation.

**Discussion**

Trainees will be asked to state if they have enough support from the community and if not they may be asked to state the reasons thereof. The right approach to ensure community support would emerge from the discussion. The teacher would feel the necessity of entering into a full-fledged dialogue with the community. They would learn to identify themselves with the community.

**Self – check exercise**

The participants will be asked to respond to the statement in terms of Yes / No and to give reasons for their answer.

- Sponsored community participants are the best form of community participation. Yes / No
- The teacher should work for the community instead of working with the community. Yes / No
- Through community participation regular attendance of children and their retention in school can be ensured. Yes / No
- Skilled persons in the communities can help the school in taking up activities related to work experience. Yes / No
- Community intervention is likely to spoil the congenial school atmosphere. Yes / No

- School should become a center for learning for every one in the community. Yes / No
- Teachers are not required to guide community members. Yes / No

**Implication for classroom instruction**

Teacher will involve the community in the affairs of the school and will be involved in the affairs of the community. He will take interest in understanding the culture of the community. He will survey the community to take stock of the resources available for utilization by the school. He will better appreciate the problems of the community. Instead of complaining about the children, he will give positive suggestion to the parents about their wards.

# MODULE - 24

# EVALUATION OF TRAINING PROGRAMMES

## Expected learning outcomes

After completing this module a trainee will be able to:

(a) Identify the requirements / factors of a quality training programme for the school teachers;

(b) Prepare a comprehensive tool for the evaluation of training programme, from the point-of view of the target group / participants; and

(c) Evaluate training programmes organized from time to time.

## Overview

Teacher-training programme has been considered as an important intervention to improve the quality of school education, particularly primary education. Realizing the importance of teacher-training programme, a substantial amount of money is spent for the purpose, under DPEP. But very little is known about the benefits of such programmes, organized at various levels, due to the lack of programme evaluation. One of the major reasons behind this is that majority of the teacher educators lack needed skills in preparation and use of a tool for the purpose. A number of factors, including trainees' learning outcomes, gain in knowledge, satisfaction with the programme, desired changes in their instructional behaviour, infrastructural facilities, availability of necessary equipment, appropriateness of the training input, instructional approach, competence of resource personnel etc., contribute to the quality of teacher training. These, however, can broadly be categorized under input, process and output. In view of the aforesaid varieties of indicators of training quality, varieties of methods / approaches can be followed for the evaluation of teacher-training programmes, National Council of Educational Research and Training in the department of Teacher Education and Extension, has developed a framework and instruments for monitoring and evaluation of the quality of in-service training. These tools include trainee's reaction scale, classroom observation scale and interview schedule for resource persons etc.

This module has been designed with a view to involving trainer and trainees in the development of a comprehensive tool for the purpose, during the training session itself, which ultimately would develop a sense of ownership among the trainers to use it.

**Activities**

The trainees will be divided into groups consisting of 5-7 members in each and each group will be asked to:

(a) Make a list of specific requirements / factors of an ideal training programme for the school teachers, e.g. activities, human and material resources.

(b) Categorise them under input, process and output.

(c) Think of suitable method technique to evaluate each requirement / factor under input, process and output, e.g. present-absent; scales – yes / No ; good, average, bad; asking questions; testing.

(d) Arrange the factors under input, process and output so that those requiring similar method of assessment will be put together. (for example, factors under inputs that can be evaluated with the help of three point-scale ; good-average-bad, can be put together).

(e) Decide order in which factor / group of factors under each category will appear in the tool.

(f) Decide the type of identification information in respect of the respondent which need to be put at the beginning of the tool, e.g. Name, address, age, sex, experience, qualification.

**Discussion**

The trainer will put the following questions for discussion:

(I) Should we pay equal weightage to the three different aspects of a teacher-training programme ? viz. Input, Process, Output ? If yes, Justify. If no, distribute the weightage.

(II) Should we evaluate teacher-training programme from the trainee's point of view only? If yes, justify. If no, give your suggestion.

(III) Which tool(s) are more / less appropriate for evaluation of teacher training programme? Give justification in support of your view?

(IV) What inputs / strategy do you suggest for the present training programme?

**Key learning points**

(I) Teacher training is the most important intervention to improve the quality of school education.

(II) Indicators of training quality broadly cover inputs, process and output.

(III) Varieties of methods can be used to evaluate teacher-training programme, e.g. reaction scale, observation schedule, interview schedule.

(IV) Evaluation provides feedback to the trainers as well as trainees.

**Self check exercise**

(I) Teacher-training programme should be evaluated taking the views of trainees only. Yes / No

(II) Output only of the training programme should be evaluated. Yes / No

(III) Trainer should be involved in the process of evaluation of training programme. Yes / No

(IV) Each and every training programme need to be evaluated. Yes / No

(V) Evaluation provided feedback to the trainer. Yes / No

**Implications for teaching-learning process**

Evaluation:

(I) Brings refinement in further training programme;

(II) Increases involvement of both trainer (functionary) as well as trainee (beneficiary) in the process of training; and

(III) Helps to design need based teacher training programme.

## MODULE-25

# DEMONSTRATION OF ACTIVITY BASED TEACHING IN WORK EDUCATION

## (Paper-hat for class-VI)

### Expected Learning Outcomes

After completing this module a trainee will be able to:

- Acquire the skills required for preparing the paper hat;
- Derive pleasure out of his involvement in the process;
- Make use of waste paper; and
- Develop interest in undertaking it as a part of life-skill in future if needed.

### Overview

The learners are not the passive listeners in the classroom rather they are active participants in the learning process. In this way the classroom environment is a miniature form of real life environment giving enormous pleasure to the child. Skill development in work education expands properly when the learners are actively engaged in the leaning process. It facilitates the learning and acquisition of skill. Therefore, learning through the activity is the need of the day. The educationists and skilled personnel have identified many activities that make use of the low-cost and / or waste materials. These activities have immense implications for the future. Further, such activities make teaching learning process activity-based, joyful and participatory.

### Learning activities

### Activity – I

The trainer will demonstrate the procedure of 'making hat' before the trainees with instruction to imitate him. The following procedure for example, will be followed to make a hat.

**Materials needed:**

(I) A large piece of paper (About the size of a news paper);
(II) Scissors; and
(III) Markers or crayons

**Procedure**

- Start by making a square piece of paper. To start making the square, fold one corner of a piece of paper over to the adjacent side.
- To finish making the square, cut off the small rectangle, forming a square (which is already folded into a triangle).

- Position the triangle so that the fold (the long side) is on top. Fold one top corner of the triangle over so that it touches the bottom corner. Do the same with the other corner.
- Fold both of the tips up (fold at the dotted line pictured on the left), so that they go to the top.
- Fold the remaining strip of the triangle up and over the top part of the hat.
- There are now two large triangles on the bottom. Fold the uppermost triangle most of the way up over the top half of the hat.
- Fold the remaining strip of the triangle up and over the top part of the hat.
- Fold the other large triangle up and into the hat. Now your hat is ready.

**Activity – II**

The trainees will be divided into groups consisting of 4 -5 members in each. The groups should ideally include the members of varying ability. Each group will be allotted 5 - 10 minutes for making a hat.

**Activity – III**

One member of each group will be asked to demonstrate the activity in general session.

## Activity – IV

The trainer will ask the trainees to prepare a 'hat' each within 5 -10 minutes.

## Discussion

The trainer will put the following questions for discussion

- Whether time allotted to do the activity i.e.5 -10 minutes is enough? If no, how much time should be allotted?
- At what step do you face difficulties?
- Do you feel bore during the activity?
- Do you feel that the activity will help you in any way in future?

## Self check exercise

(a) The learner gets sufficient opportunity to participate actively in preparation. Yes / No

(b) Making hat is costlier. Yes / No

(c) The process of making hat is boring on the part of learner. Yes / No

## Implications for Classroom Instruction

- Develops creativity
- Makes the learning joyful and participatory
- Enhances sensory motor skills of the learner
- Develops the value of dignity of labour among teachers as well as learners.
- Makes the learning interesting.

## MODULE - 26

# QUALITY EVALUATION

### Expected Learning Out- comes

After completing this module, a trainee will be able to:

1. State the essential features of a quality evaluation programme;
2. Understand the meaning and importance of each feature of a quality evaluation programme;
3. Explain how a quality evaluation programme allows flexibility in respect of contextual variables; and
4. Critically examine the evaluation programme of a school to find out the strengths and weaknesses.

### Overview

A quality evaluation programme gives emphasis on comprehensiveness and continuity. At present schools confine their evaluation programme only to achievement testing in school subjects. Evaluation in non-scholastic areas of learning (socio-personal qualities of learners) and in co-curricular activities has been neglected. In respect of tools and techniques of evaluation, written achievement tests are in wide spread use. A balance between the testing and the non-testing techniques, between external and internal assessment is rarely achieved. Evaluation activities, instead of being regular and integral affairs of teaching-learning process, have become special events of two / three times in a year. The formative and diagnostic functions of evaluation are rarely utilized. In any quality evaluation programme the different stake-holders are involved in the evaluation programme in their various capacities. In planning and designing the programmes the school head, experts (subject and evaluation as well) teachers and parents must have their representation. An introduction of a new programme or any change in evaluation programme should accompany advocacy programmes. This makes a programme meaningful to all; wins confidence and acceptability of the stake-holders; and increases belongingness and involvement in the programme. A good evaluation programme must have an in-built feed-back mechanism in two matters. First, the results of various evaluation activities should be systematically and meaningfully conveyed to students, parents and other necessary quarters about the development of pupils and areas of weakness. Secondly, any quality evaluation programme should have a sound programme evaluation and review technique for system development. Last but not the least a quality evaluation programme must sustain over time and situation. Sustainability of an evaluation programme has to do with resources demand (material, human and financial), load factor (on staff, students and parents) and the benefits accrued through the programmes. Efficient management of these parameters makes an evaluation programme a qualitative one.

**Learning Activities**

The trainer initiates an interactive session in which the trainee gives his / her own idea about a quality evaluation programme. The trainer can use the following questions to facilitate the discussion and keeps it focused on the theme:

1. What are the areas of evaluation possible at elementary school stage?
2. What tools and techniques can be used for evaluation purposes?
3. How many times can evaluation activities be conducted?
4. What way should evaluation activities be treated?
5. What roles should the teachers, parents, experts and students have in evaluation programme?
6. Is there any need of a feedback mechanism in an evaluation programme?
7. How can evaluation programme be sustainable?

At the end the trainer consolidates and presents the following features of a quality evaluation programme.

The quality evaluation programme:

(I) is comprehensive;

(II) is continuous;

(III) is an integral component and a regular affair of schooling (Not a special event);

(IV) has a feed back mechanism;

(V) is a participatory activity; and

(VI) is sustainable.

**Discussion**

The trainees are divided into four groups. Each group discusses the six features of a quality evaluation programme in one of the following four contexts:

(I) Rural schools

(II) Urban schools

(III) Schools with multiple class teaching provision

(IV) Schools with single class teaching provision

Each group discuss the six features of evaluation with reference to:

(1) The extent to which the features are found with evaluation programme;

(2) The worth / Importance of the features as the group members perceive in the assigned context;

(3) The problems that may stand before a school in making its evaluation programme qualitative in the particular context;

(4) The problems that need be tackled in the given context.

After discussion in individual groups, the trainer asks each group to share the points of agreement / disagreements of their group with rest of the trainees.

**Self – check Exercises**

Check your learning through the following self check exercises.

**Exercise-1**

Put a tick mark ( √ ) against the statement with which you agree

1. A quality evaluation programme focuses only on scholastic areas.
2. In a good evaluation programme parents have nothing to do.
3. A feed back mechanism is an essential feature of a quality evaluation programme.

4. Evaluation activities must be treated as special events in the school.

5. Comprehensiveness of a quality evaluation programme mean coverage of all areas of learning, and use of multiple tools of evaluation.

6. Sustainability of an evaluation programme is concerned with resource demand, load factor and the benefits of the programme.

**Exercise – 2**

Take the case of an elementary school you are most familiar with; critically examine the various activities undertaken there for learners' evaluation; and scrutinize the activities in terms of the six essential features of a quality evaluation programme. Find out what aspect(s) are to be taken care of to make the evaluation programme a qualitative one.

**Key Learning Points**

A quality evaluation programme

(I) is comprehensive;

(II) is continuous;

(III) is an integral component and regular affair of schooling (not a special event of stress and much concern);

(IV) has a feedback mechanism;

(V) is a participatory activity;

(VI) is sustainable.

A quality evaluation programme allows flexibility to accommodate contextual variables.

Note : Scoring key to self-check exercise-1.

Statement with serial No.1,2,4 are incorrect statements. Others are correct statements.

## MODULE - 27

# Assessment of Training Needs of Primary School Teachers

### Expected Learning outcomes

After completing this module a trainee will be able to:

(a) Know about various tools for assessment of training needs to primary school teachers working in the locality;

(b) Develop tools for assessment of training needs of primary school teachers; and

(c) Assess the training needs of primary school teachers, particularly, while conducting different training programmes.

### Overview

The major concern in the context of UPE is the quality of primary education. Studies show that learning achievement at primary school stage is very low across the country. (Dave, 1996, Jangira etal, 1994, Verghese, 1994). Some studies have attributed low achievement of children among others to the weakness of teaching profession, e.g. lack of pedagogical skills, poor content mastering and lack of motivation (The World Bank, 1997). Therefore, in-service training of teachers is widely recognized as one of the important factors to improve the quality of school education. Now a days, number of teacher training programmes are being organized, both on the contents and pedagogy, by the agencies like DIETs, CTEs, IASEs, SCERTs, RIEs at different level. National, state, district, but reported to have inadequate impact on the teachers. The main reason behind this is that such training programmes are seldom based on systematic assessment of training needs (Arora et al. 2000).

The training needs of teachers can broadly be categorized as pedagogical needs and content related needs. Varieties of tools, e.g. achievement test, questionnaires, classroom observation schedule, focus group discussion, rating scale results of public examination, interview brain storming can be used for the purpose depending upon the situation, time available and expertise of the assessee. A comprehensive an ideal need assessment process make use of all the aforesaid tools. This module, however, seeks to suggest the activities that can be performed by the teacher-educators of DIETs, conveniently, during organization of training programme in their locality. The uses of tools like rating scale and focus group discussion have been suggested to serve as examples.

**Teaching Learning Activities**

**Activity – 1**

(I) The trainer will divide the trainees into four or five groups.

(II) Each group will make a list of specific professional activities a teacher is likely to perform and categorise them as pedagogical, content-related and general.

(III) Each group will present their own list in a general session for discussion and scrutiny. At the end, 15-20 important activities will be kept under each category, viz. pedagogical, content related, and general, on the basis of consensus.

(IV) Trainees will assess each activity individually in five point scale, i.e. most effective (ME), effective (E), average (A), ineffective(I), most ineffective (MI), and submit before the trainer. The trainees will be instructed as follows:

- ➢ Put the scale in the right hand side of each activity, e.g. ME, E, A, I, MI.
- ➢ Encircle 'ME' in respect of the activities that you yourself feel to perform most effectively; encircle 'E' in respect of those you feel to perform effectively; encircle 'A' in respect of those you feel to perform with average effectiveness; encircle 'I' in case of those you feel yourself ineffective to perform; and 'MI' in case of those activities you feel yourself most ineffective to perform.
- ➢ Assign score of 5 for the response ME, 4 for E, 3 for A, 2 for I and 1 for MI and there submit the scripts.

(V) The trainer will do the followings beyond the training session:

- ➢ Add scores of all the members in respect of each item to get a combined score for each item.

- Arrange activities under pedagogical content related and general ascending order on the basis of weighted scores in respect of the activities.

(VI) The trainer will priorities the training needs under pedagogy, content and general, on the basis of weighted scores of the activities in these areas. For example, the activity under pedagogy with lowest score i.e. at the bottom of the list, will be given top priority while organizing training on pedagogy in future for the group.

**Activity – 2**

The activity, focus group discussion will be conducted sometimes beyond the scheduled training session with a group of 15-20 trainees. Two trainers are required to conduct this activity one will act as moderator and the other as rapporteur. The moderator will initiate and guide the discussion along the following points / issues, for example, while the rapporteur will record the common views of the group systematically. The discussion will be guided so as to explore the problems that the school teachers face while discharging their professional duties:

Issues to be discussed

- Hard sports in content areas
- Co- curricular activities
- Use of TL materials
- Students evaluation
- Preparation of lesson plan
- Remedial instruction
- Learning disability
- Use of ICTs

- Enrolment and dropout
- School community relation

At the end of discussion the rapporteur will readout the common views under pedagogical, content related and general before the group to scrutinize omission and / or commission if any and priorities them in view of the training needs.

### Activity – 3

The trainer will collect, from the trainees, the other methods of assessing the training needs, with the help of brainstorming exercise.

### Discussion

The trainer will initiate discussion by putting the following questions:

(I) Are their any activities that come both under pedagogy and contents?

(II) Should we give equal weightage, in terms of time, care, quality to pedagogical, content related and general aspects, while designing / organizing training programme for the school teachers? If no, which aspect should be given more / less weightage?

(III) Should we organize separate training programmes, for school teachers on pedagogy, contents and general aspect ? If yes, justify.

(IV) Should we take the views of target group only into account in the assessment of training needs for school teachers? If no, who else are the key informants?

(V) What tool(s) is / are / most appropriate for assessment of the training needs for school teachers?

## Implications for classroom instruction

- The teacher becomes interested to apply the learned pedagogical principles during teaching-learning activities.
- The teacher deals effectively with hard spots.
- Develops self-confidence of the teacher to face the class.
- Teaching – learning process becomes realistic

## Self-check exercise

(I) Only one tool should be used in the assessment of training needs for school teachers. Yes / No

(II) Training needs for school teachers can be assessed from varieties of sources. Yes / No

(III) Most of the training programmes for school teachers are designed now a days on the basis of needs. Yes / No

(IV) Training time, to deal with pedagogical contents and general awareness, be equally distributed. Yes / No

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# APPENDICES

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